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OIL WEEKLY

FOR OIL AND GAS PRODUCERS AND PIPE LINE MEN

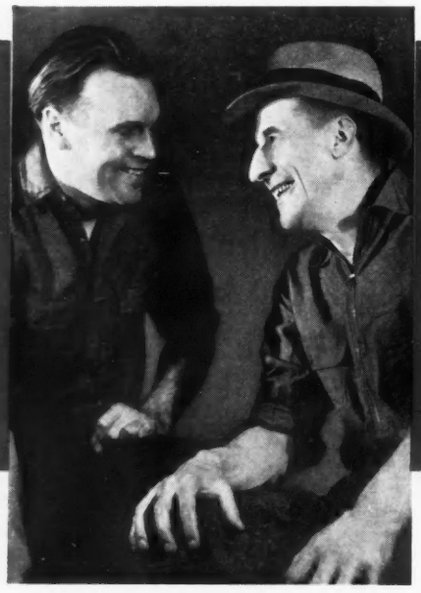
THE WEEK'S NEWS INTERPRETED

"More than 25 years ago I ran my first Rotary Rig, and I had a Hughes Rock Bit on Bottom."

"Well, if you liked the first one, Dad, you ought to run the Hughes 3-cone Rock Bit. Its three points of rolling contact assure a full gauge straight hole at record depths."

HUGHES TOOL COMPANY
HOUSTON TEXAS

VOLUME 81 MARCH 23, 1936 NUMBER 2



"She's clean as a whistle, Bob. That LARKIN Sand Pump sure does get down to business!"

For getting the sediment, cavings, sand and iron drillings all out of the well quickly—Larkin Sand Pumps simply haven't an equal. They clean out faster than any other pump on the market!

Larkin Sand Pumps are made of a cold drawn seamless tube, in any length desired. All parts are made with gauges; this allows the rapid and accurate replacing of worn-out parts without the expense of shop work. And all parts can be replaced right on the location!

Larkin Sand Pumps are made in either the Wire-Line or the Steel Plunger type. A longer stroke may be had, with no higher derrick, when the Wire-Line Plunger Pump is used. Specify LARKIN!

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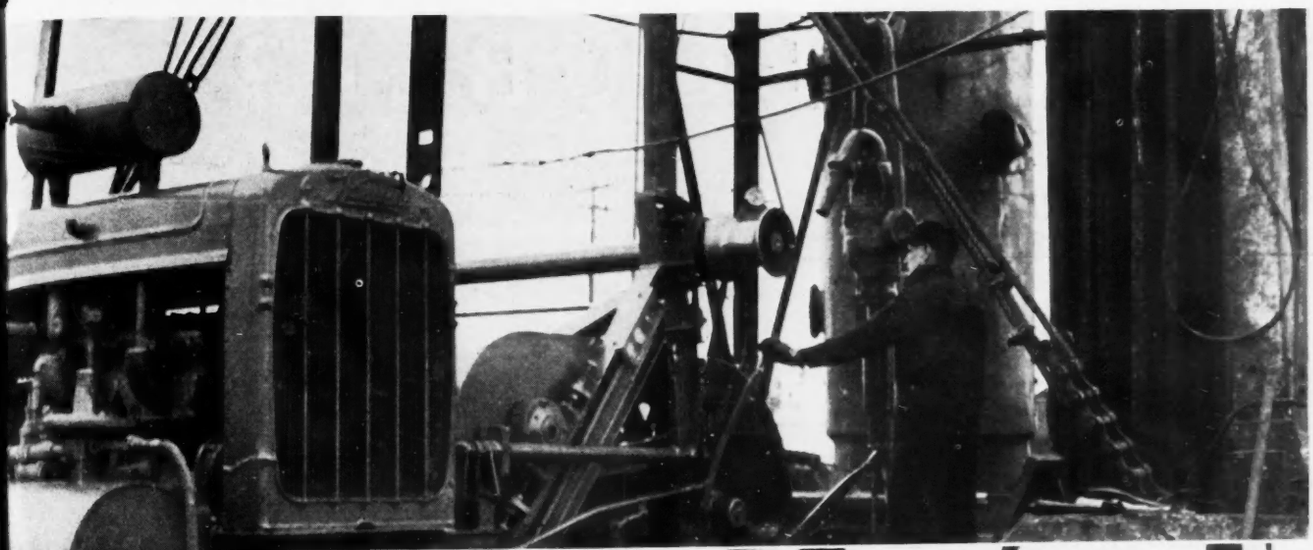
THE TOUGHEST SERVICING JOB IN THE WORLD » OKLAHOMA CITY



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MAR 25 1936

THE OIL WEEKLY

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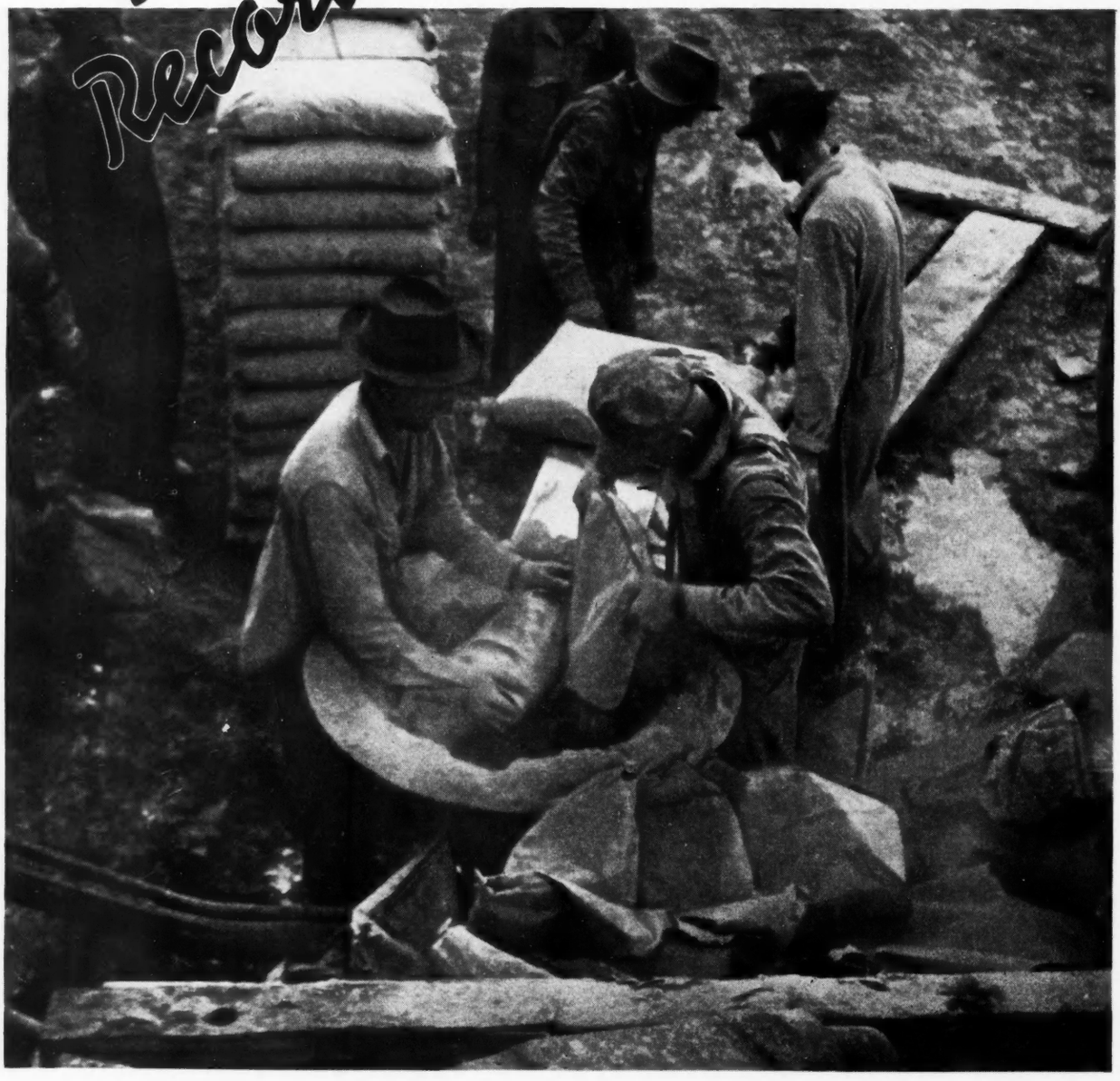
New Records WITH 'INCOR'



EACH week sees new speed records made and broken—trained crews cement wells at speeds unheard of a few years ago. Most credit goes to the skill of the men and the perfection of machinery used—but much of it is due to 'Incor', which forms a smooth, ropey, easily-pumped mix that does not settle out or clog the pumps. Even more important than its *workability*, 'Incor' cleans the hole thoroughly, and hardens quickly to form a dense, watertight, gastight bond between casing and formation. Specify 'Incor'* on your next oil-well cementing job and *be sure* it's right!

Use 'Incor' also on standardization jobs where time means money. Made and sold by producers of Lone Star Cement, subsidiaries of International Cement Corporation, New York; also sold by other leading cement manufacturers. *Reg. U. S. Pat. Off.

..'INCOR' 24-Hour Cement

THE OIL WEEKLY

FOR OIL AND GAS PRODUCERS
AND PIPE LINE MEN

ENGINEERING NEWS STATISTICS

WARREN L. BAKER, Editor.

. . . this Week

UNDER the method of allocating production in Oklahoma, fields of the state have been divided into five classes according to their producing ability and other conditions. The United States Bureau of Mines monthly estimates on fuel consumption are used as a basis in determining the state's allowable output. In taking potential gauges the state requires a six-hour gauge, and the first two hours are eliminated, and the remaining four-hour gauge is multiplied by six to get the 24-hour production. In most cases the Oklahoma Corporation has ordered wells in each field to use uniform tubing. Reports of production are required of both the producer and purchaser. It is the aim of the commission to establish rules and regulations that will give the greatest ultimate recovery, and a well spacing law has been passed by the Oklahoma Legislature. **Page 25.**

"TAKING into consideration the spirit of optimism prevailing within the (Trinidad oil) industry, and judging from the good record produced in all sections of operations during 1935, it is anticipated 1936 will mark the approach of another boom period for the oil business in Trinidad," is one of the concluding remarks of Victor Bryan's paper on Trinidad. General expansion, continued exploratory work, the tendency toward more scientific operation, and the hope of better prices and preferential treatment for Trinidad oil in England are given as further causes for the bright outlook there. **Page 48**

WHEN a South Texas operator decided to keep as much of his fee lease for farming as possible, he developed an unusual pumping arrangement that occupies a minimum amount of space, is inexpensively operated and has several safety features. Four wells were drilled on the 11-acre lease, one in each corner, and by designing a different hook-up from the usual system he conserved most of the ground for other purposes. **Page 41.**

AN efficient and simple constructed portable oil pick-up unit is being used in the Texas Panhandle for reclaiming oil lost through broken lines, etc. The unit is operated from a power assembly on a truck and can be placed in practically any kind of location. Considerable savings have been made by using the portable pumping unit. **Page 34**

GETTING in step with modern exploration methods, Wyoming plans changes in regulations governing leasing of state lands for oil development. Heretofore the rule has been to hold blocks to one section and one year. Watching results in an adjoining state is responsible for a liberalization of these regulations, which will permit application of modern methods and no doubt will encourage some discoveries. Still more of borrowing another state's methods is that Texas will lease some western lands by auction as against the old rule of sealed bids. And in turn, Louisiana is contemplating drawing up some conservation laws with the Texas statutes as a model.

The Oil Man's Calendar

APR. 6–8	Western Petroleum Refiners Association, Excelsior Springs, Missouri.
9–10	American Petroleum Institute, Division of Production, Southwestern District, Shreveport, Louisiana.
11–13	Petroleum Industry Electrical Association, Tulsa, Oklahoma.
13–17	American Chemical Society, Petroleum Division, Kansas City, Missouri
14	American Petroleum Institute, Division of Production, Pacific Coast District, Los Angeles, California.
16–18	National Petroleum Association, Cleveland, Ohio.
20–25	Oil Equipment & Engineering Exposition, Houston, Texas.
MAY 5– 8	American Gas Association, Natural Gas Department, Dallas, Texas.
13–15	American Petroleum Institute, Mid-Year Meeting, Tulsa, Oklahoma.
13–15	Natural Gasoline Association of America, Tulsa, Oklahoma.
16–23	International Petroleum Exposition and Congress, Tulsa, Oklahoma.
21	Independent Petroleum Association, Tulsa, Oklahoma.
22	National Stripper Well Association, Tulsa, Oklahoma.
JUNE 18–19	Pennsylvania Grade Crude Oil Association, State College, Pennsylvania.
NOV. 9–12	American Petroleum Institute, 17th Annual Meeting, Chicago, Illinois.

PRODUCERS of crude oil appear as nearly happy as they have been within convenient memory. Perhaps theirs is the situation of the story about Chinese women, but the fact remains that proration hearings can be held with a minimum of discord—objections are getting to be exceptions. The week's session at Austin brought objections such as can be corrected as a matter of routine in the fields, and there were few requests for additional allowable. **Page 8.**

CONGRESS continues to keep itself exercised about oil imports whether or not it does anything about it. One week higher import duties are pictured as a source of great additional revenue, and the next it is a matter of life and death for the industry in the United States. This week it is the latter. **Page 8.**

SECRETARY ICKES quite definitely is out of the saddle on the oil industry, but he has a hand on the stirrup. **Page 9.**

FURTHER earnings reports indicate that current conditions are most favorable—things have improved since the first of the year, and it was in the latter months of 1935 that most of the reports got the real gloss on their black. **Page 18.**

Texas Market Stable

INCREASED DEMAND TO CARE FOR NEW COMPLETIONS

Austin, Texas.—A stable condition in practically all the oil fields in Texas was reflected at the statewide hearing before the Texas Railroad Commission which was held here March 18. Purchasers filed nominations to purchase 380,002 barrels per day during April. Because the information was incomplete, district purchases could not be determined and will become available later.

The complaints of operators were of matters subject to correction in the course of routine, and the demands for increased allowables were small.

The announcement that the Bureau of Mines had found that the consumer demand for Texas oil during April would be 18,500 barrels higher than it was in March, indicated that the commission would likely be able to care for the increased production from new wells.

The state allowable March 19 was above 1,132,000 barrels per day. The Bureau of Mines found the April demand for Texas oil to be 1,122,800 barrels per day. Since the production reported usually runs about two percent below the allowable production, the commission should be able to issue orders as high as 1,145,250 barrels, and production will continue within the demand.

The commission pointed out that 423 producers had been completed in Texas during the first 18 days of March, and that the accretions to the allowable which resulted from assignments to these new wells was responsible for a much higher allowable production than was fixed in the orders effective March 1.

Pressure Up

V. E. Cottingham, director of production for the commission, reported an increase of .68 pounds in the average bottom hole pressure for the East Texas field as of March 12. This brought the pressure up to 1208.18 pounds, and was an increase of .054 pounds per million barrels produced during the month.

Because of this healthy condition in the field Cottingham recommended that the allowable be fixed at 440,000 barrels per day. He based this recommendation on the fact that the pressure in the field had increased while it was produced at the rate of 437,496 barrels per day.

Major companies which had advocated the inclusion of an acreage factor in the East Texas proration order renewed their requests at the hearing.

Pure Oil Company requested an increase of 2500 barrels daily in the allowable for the Van field. This request was predicated on a finding that bottom hole pressure at Van in the Brown sand has increased approximately nine pounds during the past six or seven months. Charles I. Francis, Pure Oil Company attorney, said that his company's needs had increased 12 percent, and that it preferred to produce its own oil instead of purchasing it.

An increase of 1500 barrels per day for the North Texas district was sought. At present, allocations to marginal wells absorb all of the allowable except 5400 barrels. This remainder must be divided between so many flush producers that

Urges Import Ban

TEXAS CONGRESSMAN WANTS PROMPT ACTION ON BILLS

WASHINGTON, D. C.

CHARGING that "hot" imports threaten to disrupt the stability of the oil industry and may at any moment render ineffective the Interstate Compact, Representative Morgan Sanders of Texas on March 19 urged prompt congressional action on restrictive legislation.

Bills providing for the doubling of the present excise taxes on imported oil and its products and imposing a tax of $2.00 per ton on imported asphalt have been introduced by Representative Sanders and Representative Disney of Oklahoma, who also seeks limitation of imports, and are now pending before the House Ways and Means Committee.

"'Hot' imports are today as serious a danger to the economics of the petroleum industry as was ever 'hot' oil in the days when the oil states were struggling with the task of working out a practical and equitable system of production regulation," the congressman declared.

"The definite limitation which the Disney bill sets upon imports will free all the oil states of the Union from that constant threat that all their efforts at stabilization and conservation may be made vain at any time by vastly increased imports."

Pointing out that the existing wells in the East Texas field alone could produce 336 million barrels of oil in a single day, or almost as much as the total Texas output last year of 391 million barrels, Mr. Sanders asserted that the industry feels "that since it has placed production limitations upon the oil wells of the state, the foreign product should not be admitted without regulation and without limitation of any kind.

"If it is proper that Texas wells should be shut in," he said, "it is equally proper that the foreign supply of oil shall be equally and proportionately shut in."

Any American individual failing to express an honest opinion on matters affecting our national welfare fails in his duty to himself and his country.

★

One of the greatest fallacies of the day seems to be the thought of some that the fellow with a job, the fellow who has saved something, is not sympathetic with the man who has no job—with the woman and child who are hungry.

Honestly, we doubt the sincerity of the man who makes such a statement. It is not backed up by fact. It has always been the fellow with the job, the man who has saved something, who has contributed to the man who was not so fortunate.

Politicians to the contrary, notwithstanding, the average American worker, the average American business man, is not hard hearted, unsympathetic. He, on the contrary, has been found to be generous on all occasions.

We know of few men who have any property, who would be willing to let the hungry starve. Most of them agree with us — "What has been done to help the needy — even though it has been extravagantly done — we shall not condemn. We are willing to dig into our pockets to pay for it. But the idea that a government can spend and spend and spend without regard to the future is as absurd as the idea that an individual can do the same."

Isn't it about time for us to get our feet on the ground and look at the road instead of star gazing?

the individual allocations are very small.

The Humble Oil & Refining Company requested relief from connections which have a total allowable of 2716 barrels in West Central Texas. A large part of this production is in the Jones-Fisher area. Attorneys asserted that the demand for this type of crude was on the decline. The request brought a protest from Charles F. Roeser, who told the commission that this concern has about 90 percent of the outlet in the area, and suggested that it be required to exchange connections with some concern operating in other parts of the state, so that the West Central Texas outlet would no be closed.

To Indicate Gravity

Discussion of this problem brought from the commission the suggestion that in future nominations, purchasers be required to show the gravity of the oil which they desire. It will then be practical to see that the distribution is more uniformly divided among the various fields producing the same grade of crude.

An increase to 15,000 barrels a day for the South Ward field was requested. This field now has an allowable of 12,245 barrels.

The Skelly Oil Company asked for a 25-barrel increase in the per well allowance for the Bay City field where the wells now have an allowable of 125 barrels each.

The Texas Company requested a 2000-barrel increase for Manville.

CONTINUE P. A. B.

WASHINGTON, D. C.

CONTINUANCE of the work of the Petroleum Administrative Board through a petroleum conservation division to be set up April 1 was announced this week by Secretary of the Interior Harold L. Ickes. The new division will be headed by a director.

Orders for the change issued by the secretary provide that "this division will assist the Secretary of the Interior in administering the act of February 22, 1935, and under his direction is authorized to discuss the work of any agency dealing with oil and gas, recommend action on any case brought to its attention, coordinate information and, through appropriate channels, act as the contact agency with the Interstate Oil Compact Commission, present required data to the Congress, attend oil and gas conferences in which the department is interested, cooperate with the oil producing states in the study of physical waste and the enactment of uniform oil and gas conservation laws, and contact other departments of the government whose work deals in any measure with oil and gas."

Discussing the oil situation generally, Mr. Ickes said that no report has yet been received as to "hot" oil running from Rodessa field, although he has discussed the matter with men from East Texas and knows something about the situation. He would not say when a formal report might be received or when further action might be taken.

Reed Heads Geologists

NEED FOR ADVANCE IN METHODS POINTED OUT

TULSA.

GEOLOGISTS from all of the oil-producing states, from many of the non-oil-producing states, and from several foreign countries assembled here during the week to make the Twenty-First Annual Convention of the American Association of Petroleum Geologists the second largest during the history of the organization and what is probably one of the most instructive sessions during the 27-year period.

Ralph D. Reed, chief geologist in California for The Texas Company, was elected president of the association by acclamation. The only question which had to remain unanswered in regard to the list of new officials until counting of the ballots was that of vice presidency, for which C. E. Dobbin of the Denver office of the United States Geological Survey, and Jerry Newby, consulting geologist of Oklahoma City, were nominated. The new secretary-treasurer is Charles Row, Sun Oil Company, San Antonio, and L. C. Snider, New York, was re-elected editor of the bulletins.

San Francisco and New Orleans were the chief contenders for the 1937 convention, with the likelihood that the former would be selected. The last convention held on the West Coast was in 1928.

The Society of Economic Paleontologists and Mineralogists elected Merl C. Israelski, United Gas Company, Houston, as its new president; Reginald Harris, University of Oklahoma, Norman, vice president; Gayle Scott, Texas Christian University, Fort Worth, secretary-treasurer; and Raymond C. Moore, Kansas State geologist, editor.

The Society of Petroleum Geophysicists selected L. W. Blau, Humble Oil & Refining Company, Houston, president; Gerald H. Westby, Seismograph Service Corporation, Tulsa, vice president; John H. Wilson, Colorado Geophysical Corporation, Denver, secretary-treasurer; and F. M. Kannestine, Independent Exploration Company, Houston, editor.

The association recognized the achievements of two outstanding geologists when it elected to honorary membership Dr. E. O. Ulrich, 76-year-old paleontological authority with the United States Geological Survey, and W. A. J. M. Van Der Gracht, head of the Geological Survey of the Netherlands.

Registration for the convention passed the 1750 mark Friday. This has been exceeded only by the attendance of the convention of 1927 in Tulsa

The New Presidents

R. D. REED
Geologists

DR. LUDWIG W. BLAU
Geophysicists

when the registration totaled 1827. That the geological profession has become increasingly active in oil affairs during the past year was evidenced by the attendance of many members who have not been present in several years.

The technical sessions of the three societies included 18 papers. If any features of the program could be selected as standing out prominently, the treatment given geophysical subjects and the symposium on recent developments probably would have to be selected. Both were well attended.

The presidential address by the retiring president, A. I. Levorsen, struck a keynote which permeated the convention. In his paper, "Strategraphic vs. Structural Accumulation," Levorsen outlined the history of the association. He predicted that the billion-barrel a year demand which is now being made on the industry will be met by more intensive research by geologists, and he challenged the profession to keep step with the petroleum industry in its search for oil.

Stratagraphy

The high point of his address was in this statement:

"One major criticism which I think can be made of our approach to the problem of oil discovery is that we have been too closely confined in our efforts to a mere search for local deformation. We have led the oil operators, executives and managers of our oil companies to believe in the magic of the closed structure contour until it is quite generally believed, both by geologists and non-geologists, that our future reserves are largely limited by the extent to which we are able to find new domes and anticlines.

"Such a philosophy has been adequate and will continue to be so just as long as there are enough anticlines. But, if we depend on folding alone, our future discoveries are indeed limited, for we undoubtedly are running low on the supply of untested domes and anticlines."

One of the most interesting features of the first day was the informal dinner of the research committee which was followed by a round table discussion of "Variation of Occurrences and Character of Oil and Gas With Variation of Strategraphic Facies."

The smoker Thursday evening drew a large attendance, and those who were present were rewarded with an illustrated lecture on "The New Dinosaur Kingdom," by Dr. Barnum Brown of the American Museum of Natural History. Motion pictures in color, taken on an airplane inspection of seven Rock Mountain states, illustrated the lecture.

Banquets were held at two separate points and dances at three places Friday evening.

The field trip by bus, leaving Saturday and returning Sunday, was accepted by 40 geologists. The route covered the Stroud, Seminole and Fitts pools and a study of Ordovician rocks in the Arbuckle Mountains in southern Oklahoma. Sunday afternoon the party attended the unveiling of a memorial to David White on the campus of the Oklahoma Teachers College at Ada.

Compact Policies

THOMPSON REPORTS ON OKLAHOMA CONFERENCE

AUSTIN, TEXAS.

A GENERAL policy to be followed by each of the member states of the Interstate Oil Compact Commission and outlined in a report presented at the Oklahoma meeting was revealed by Ernest O. Thompson, chairman of the Texas Railroad Commission, upon his return to Austin last week.

Thompson explained that all the laws relating to conservation which were in effect in each of the states had been summarized and compared in an effort to determine the best features of each.

The report submitted was based on what the committee found to be the best features of these statutes, and the recommendations made, suggested policies as well as legal remedies.

"The conservation of oil and gas is a vital matter to civilization," the report said, "because there are few, if any, people in this country whose living does not in some manner demand goods made with the aid of, or transported by petroleum products . . .

"Oil and gas fields are not restricted by state boundaries, but conservation has been restricted and hampered by failure to have more uniform state laws and regulations by regulatory bodies . . .

"Legislatures should authorize their state regulatory agencies to cooperate with similar agencies of adjoining states for conservation purposes in all fields crossing state lines . . .

"By properly conserving the reservoir energy, encroachment of water in fields which have a water drive will be retarded and utilized; larger amounts of crude petroleum will be recovered and lifting costs reduced. Conservation of reservoir energy is a proper subject for legislative action . . .

"Proper well spacing should serve to prevent physical waste; to conserve reservoir energy; to reduce development and operating expense and to increase ultimate recovery of oil and gas . . .

"Spacing rules should be based on engineering studies of the character and condition of the reservoir, the cost of drilling and other pertinent factors.

"Well spacing is a matter that should not be rigidly fixed by legislative enactment, but authorization should be given to proper state agencies, to adopt and enforce well spacing rules, for the prevention of physical waste, to meet local conditions . . .

Unit Operation

"The operation of a pool as a unit under one management has economic advantages. It results in minimum development and production costs. Maximum conservation of oil, gas, and reservoir energy are possible, as well as large ultimate recovery . . .

"Unit operation also has its disadvantages. If incompletely developed, the determination of the boundaries of the pool is impossible. An appraisal of the producing value of the various holdings at the time of unitization is difficult or impossible. It is impracticable to radically alter or revoke such a plan when once put into operation . . .

"Unit operation should be permitted with the approval and under supervision of the existing regulatory agency when all the persons in interest mutually agree upon the plan and period of operation . . .

"Proration or regulation of production of oil and gas is now considered necessary to prevent physical waste and maintain production within reasonable market demand . . .

"The conservation laws of several states provide for ratable taking, both as between wells within each common source of supply and as between different common sources of supply. Ratable taking, as applied to wells within a pool, is necessary for the protection of the property rights of the various producers, landowners and royalty interests.

"In the enactment of state conservation laws, consideration should be given to the fact that no two pools or common sources of supply are entirely comparable as to sand conditions, reservoir pressure and other operating factors.

"Ratable taking for prevention of physical waste should be clearly and legally defined and the commissions or regulatory bodies should not be required to allocate to all pools and wells on the same plan.

VALUE OF MINERALS

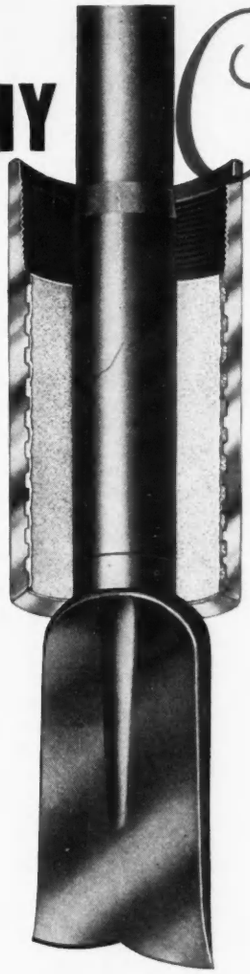
Oil states rank high in receipts for products

THE leading oil producing states rank high in the table lately published by the United States Bureau of Mines showing value of minerals produced in 1934 and 1933, by states.

However, the list is led for both years by Pennsylvania, which is not among the leading oil producing states. Although that state once led in oil production, it now ranks considerably down the line, and the state's leadership in this tabulation presumably reflects the coal mining there. The total value of the Pennsylvania mineral products (at the mines) was $546,933,000 in 1934.

Texas, the leading oil and gas producing state, ranked second in the tabulation, however, with total value of $509,521,000. California, one of the three leaders in oil output, but also scene of gold, silver and other mines, ranked third in the list, with value of $331,256,000.

WHY *Complete* DRILLABILITY?



REVIEW the steps taken to bring your well in—get on with your casing operation,—you've guided the casing safely, floated it safely into the well, and cemented it in. Now you are vitally concerned with the internal construction of the float shoe which will either cause loss of time in drilling out the plug and valve assembly, fill your hole with dangerous metal to handicap future operations, OR will drill out easily, giving minimum wear in the bit and circulate out of the hole, thus eliminating the danger of metal or other harmful fragments being left in the hole.

That's just where the complete Drillability of Baker Cement Equipment can be counted on to the limit:—the plug and valve assembly in all Baker Cement Equipment are made of special-formula cement with a minimum amount of Bakelite (no metal whatever). These are easily, speedily and entirely drilled up and circulated out of the hole with the rotary mud, leaving the hole safe for coring or further drilling.

Wells have been drilled without complete Drillability—so have wells been crudely dug before the advent of modern methods. BUT when PROGRESS, SAFETY and SPEED spell Lower Costs and earlier profits, you can depend with Complete reliance on Complete Drillability which is THE integral factor in all Baker Cement Floating Equipment.

There is a full detailed description of all Baker Cement Equipment in your Composite Catalog.

CORRECT DRILLABILITY

is ONE of the three points that assure Happy Landings — 3 point landings — of your casing strings. The other two necessary qualities are STRENGTH and VALVE EFFICIENCY. The three of them are yours ALWAYS in ALL WAYS when you use Baker Cement Equipment for guiding, floating and landing strings of casing of *any* length.

STRENGTH

Baker strength is ALWAYS *beyond* the collapsing strength of the casing.

EFFICIENT VALVE ACTION

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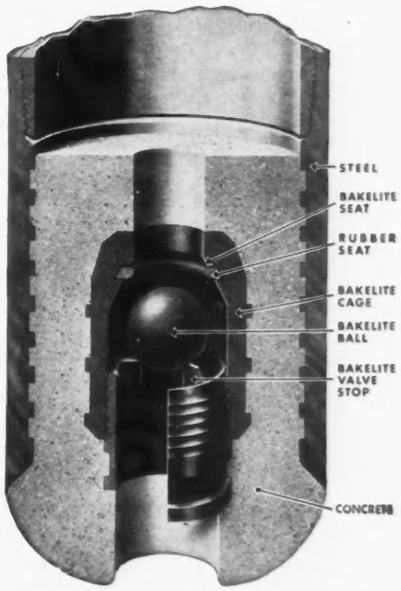

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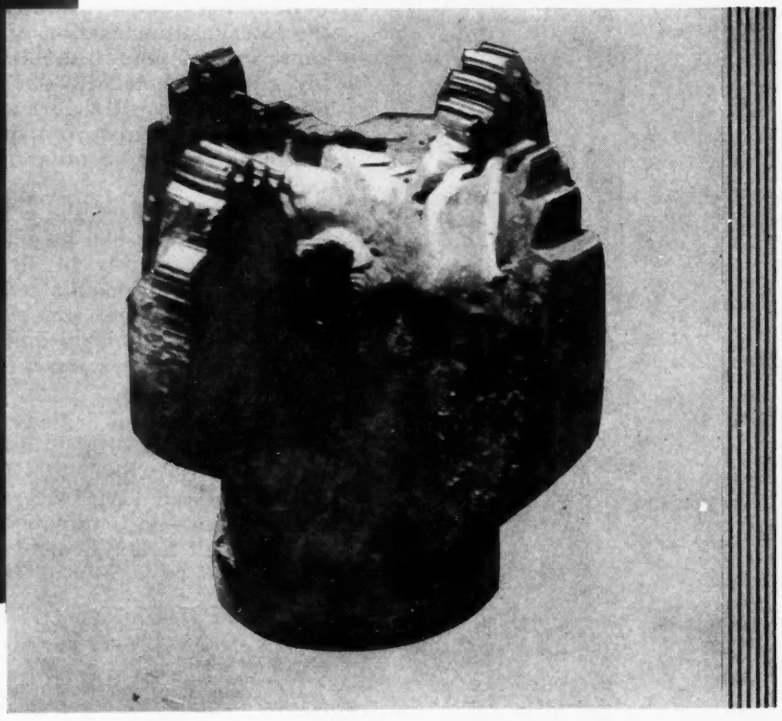

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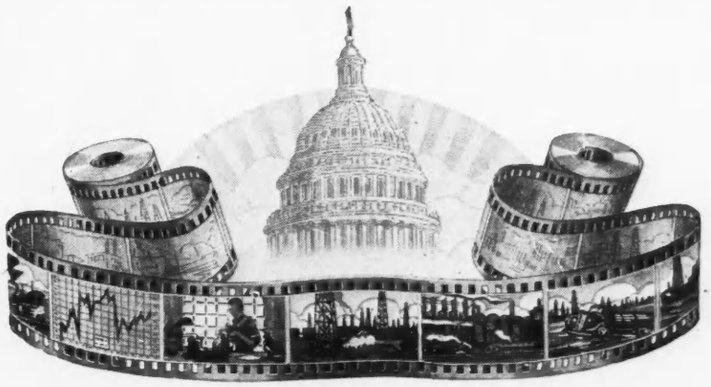


THE OIL WEEKLY'S COMPOSITE VIEW OF INDUSTRY

Edited by L. J. LOGAN, Associate Editor

FOR the oil industry the outlook continues distinctly bright. The markets have become stronger lately, with better demand causing steady or rising prices for gasoline, kerosene, and other products.

Although the price levels already are comparatively favorable, it seems quite possible that additional increases lie just ahead, not only for the products but also for crude oil.

More Price Gains Seem Likely

The background for additional price gains undoubtedly exists. Gasoline demand is expected to reach all-time peak proportions this year, and consumption of other petroleum products also will be high. Meanwhile, the production of petroleum continues effectively restrained. Supply is balanced with demand, and the demand is running high.

When the gasoline market presently begins to be stimulated by the usual rising consumption of spring, it will possibly be able to absorb further price gains without difficulty.

If and when the gasoline prices advance a few points, there will be justification for further increases of 10 or 15 cents in crude prices. For the product prices and crude postings at present are about in a normal relationship.

Crude Raise May Come Soon

There is a possibility, however, that a further general advance of prices might be led primarily by the crude market rather than the gasoline market, provided crude production continues effectively controlled. In such event, the crude market would be depending on the gasoline market to fall immediately in line. And in such event, the posting of the higher crude prices would come sooner than generally expected. It might come, for instance, within a few weeks.

These statements are based on what actually happened the past January. At that time, as at present, product prices and crude prices were in a normal ratio. But prevailing conditions in the industry were healthy and prospects were good, and the crude prices were raised moderately, in the hope they would be justified shortly by better product prices. Such justification actually occurred immediately, gasoline prices jumping upward into line with the higher crude postings almost overnight. Nor did the gasoline prices lose much of that advance in subsequent weeks even in the face of exceptionally severe weather. The crude market led the way to higher ground, and the gains were held. Possibly, the crude market again may take the initiative within a few weeks if the gasoline market should prove hesitant.

Gasoline Prices Higher

However, the gasoline market currently indicates that it has some leadership possibilities of its own; that it may be taking the lead now in an impending general advance of prices. The gasoline market is strong and tending to rise further, after having moved upward during the past week.

In the Texas districts of the Mid-Continent, tank car prices of gasoline were advanced ⅛-cent per gallon early last week, when East Texas refiners led the movement by raising the the quotation on low octane material from 4⅞ cents to 5 cents a gallon.

The higher prices reflected increased shipments and curtailed refinery operations by many plant owners. Whereas the cold weather and low demand of several weeks ago was causing distress offerings of gasoline, brokers now are experiencing difficulty in obtaining shipment at the present improved prices. The gasoline market is firm also in the northern portions of the Mid-Continent. Meanwhile, the kerosene market continues remarkably strong, in anticipation of heavy consumption on the farms during the spring. The kerosene tank car prices have been rising steadily for several weeks, and demand continues greater than the supply, indicating that quotations may go still higher.

Louisiana May Tighten Oil Control

Developments are tending to dispel the fears that have been felt for some months over possible overproduction of crude at Rodessa. The fears have been

based on two circumstances: (1) the fact Louisiana has but an immature conservation set-up, and (2) the fact that Rodessa straddles the Louisiana-Texas state line, being, therefore, subject to control by the authorities of two different states.

Both these circumstances are turning out to be less serious problems than imagined.

Louisiana does not have a strong conservation program, but apparently, it is willing to get a stronger one. The conservation officials of the state recently asked for and were given copies of all Texas Railroad Commission regulations, as well as Texas oil laws. Those officials indicated similar laws and regulations might be adopted in Louisiana. The Texas conservation program has emerged in its present sound form after many attacks in the federal and state courts, and undoubtedly it is a safe model for Louisiana to consider. Louisiana's need for state oil control has arisen largely within the past year, due to important oil field discoveries in the Coastal section of the state as well as the finding of the large accumulation at Rodessa. Now that the need for control exists, the state apparenly will solve the problem.

As regards the two-state control of Rodessa, any fears so far have proved groundless. The officials of the two states have been cooperating harmoniously. Last week the Texas Railroad Commission reiterated its intention of working closely with the Louisiana authorities regarding Rodessa. The statement accompanied a reduction of the allowable production of the two wells on the Texas side of the field from 500 to 400 barrels daily. The reduction conformed with a similar decrease in the per-well allowable on the Louisiana side. Thus the Texas wells are not being permitted to produce in excess of the Louisiana wells.

Texas Well Spacing Upheld

Oil conservation laws and orders in Texas have become so firmly grounded in the courts that it no longer is news, usually, when a court upholds the state's regulations. Only a special circumstance gave news value, consequently, to the opinion of a three-judge federal court last week tentatively upholding the railroad commission's general well spacing rule. In a decision filed at Tyler, March 17, the court refused to grant J. O. Whittington an injunction that would have restrained the commission from interfering with the drilling of a second well on a 3.23-acre tract in East Texas.

Here is the special circumstance. The plaintiff sought to turn a recent official assertion of the railroad commission into a boomerang that would come back and hit the commission. But the commission meanwhile designed a second official statement as a shield against boomerangs. Whatever the court thought of the matter, it decided the case in favor of the commission, although the case is yet to be tried on its merits.

Wanting to drill the second well on the lease, the plaintiff claimed the spacing rule was unconstitutional. He asserted that the rule promoted rather than eliminated waste, and that it had been put aside by the commission itself to the extent of permitting 14,000 of the 20,000 wells in East Texas to be drilled under exceptions to the rule. Finally, the plaintiff brought up the point that the railroad commission in an order last fall stated that the greater the number of wells drilled the greater will be the ultimate recovery of oil. It was contended, in other words, that the commission itself had made a statement justifying as dense drilling as possible.

(At that time the commission was taking an adamant stand against the proposals to change proration in East Texas from the straight potential basis. The commission was unmoved, when owners of sparsely drilled leases demanded that a well allowable be determined partially by the size of the lease as well as by the well's ability to produce.)

Earlier Statement Explained

Recently, however, the commission slipped into a new order another statement, embodying an explanation of the previous statement. The commission meant, it was said, that increased oil recovery would result from drilling of more wells in accordance with the commission's regulations. It was but natural for some observers to snicker over this explanation. The new pronouncement was exactly the opposite of what the first had seemed, without the later added clause. And some were so ungenerous as to say the commission had been obliged to crawfish.

New Oil Board Replaces Old

Administration of the Connally law against interstate shipping of hot oil will be under the newly created Petroleum Conservation Division of the Department of Interior after April 1. The new board replaces the Petroleum Administrative Board. It will also be the contact agency between the federal government and the interstate compact commission, cooperate with the oil producing states, and generally promote oil and gas conservation.

Taxes for Unemployment Explained

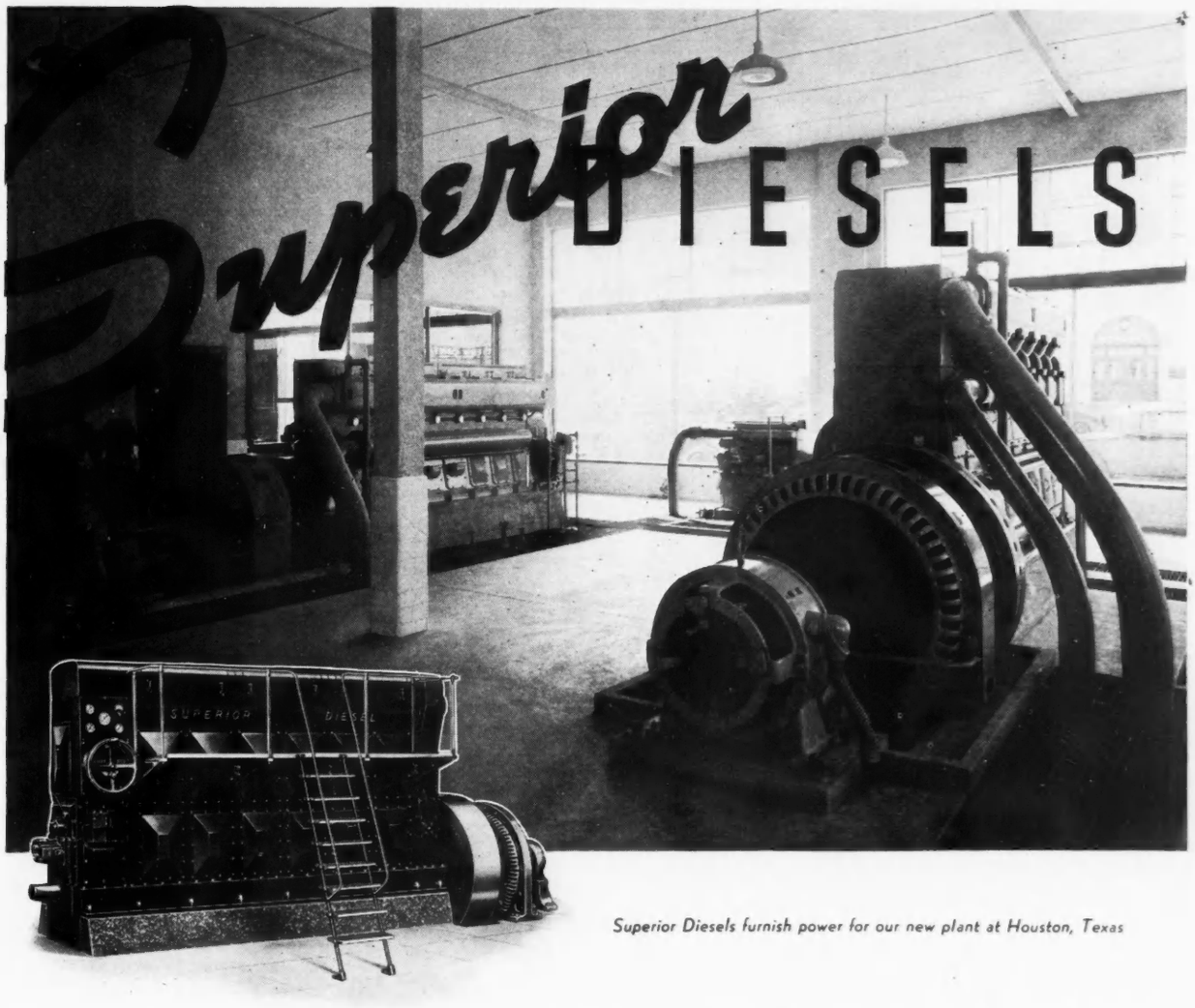
Oil companies have been further enlightened on the taxes to be paid beginning January 31, 1937, covering the unemployment insurance phase of the Social Security Act. The Internal Revenue Bureau March 14 made public its rules and regulations in the matter, explaining the nature and scope of the tax, records required, how credits and payments of the tax are to be made, and who are employers and employes.

The general definition of an employe indicates a supplying oil company will be liable for taxes on compensation of operators and maybe their helpers at leased service stations where the company controls operating details; also on compensation of some commission agents. The bureau states, however, that facts will govern in individual cases and that the bureau will rule on each case submitted to it.

The tax will be 1 percent on payrolls of employers of 8 or more persons. In states with similar unemployment compensation laws, employers may deduct from the federal tax 90 percent of their contributions under the state law.

Texas Session Rumored

In Texas, where 40 percent of the nation's current oil production is concentrated, there is now a new threat of higher taxes. It is rumored there may be a special session of the legislature beginning about May 1, chiefly for levying taxes to inaugurate old age pensions, and possibly for starting a state unemployment insurance program. When revenue is needed in Texas, there is always agitation for higher taxes on the petroleum and sulphur industries. However, this rumor of a special session lost some of its force last week, when Governor Allred asserted he had no plans for convening the legislators.



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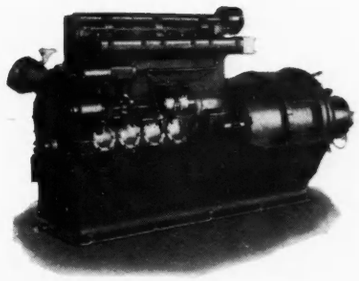

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MEN IN THE INDUSTRY'S NEWS

F. A. LEOVY of Pittsburgh, vice-president and head of the production activities of Gulf Oil Corporation, and K. C. Heald of Pittsburgh, chief geologist, made an inspection tour of the company's properties in Southeastern New Mexico and West Texas the past week. The visiting executives were accompanied by Rush Greenslade of Tulsa, vice president in charge of Oklahoma, Kansas and New Mexico operations; Walter B. Pyron of Houston, vice president in charge of Texas, Louisiana, Arkansas and Mexico activities; F. J. Adams, general agent in charge of the Fort Worth district office and H. B. Fuqua, chief geologist of the Fort Worth district.

MILLARD T. ROUNDTREE, 34, superintendent of production in the Olney, Texas, district for Petroleum Producers Company, Wichita Falls, died March 13, after being stricken with pneumonia.

PORTER FARRELL, JR., office manager for Bert Fields, Dallas drilling contractor and producer, has resigned to accept a similar position with Herman Brown, Austin operator.

BENJAMIN E. LINDSLY, petroleum engineer for the United States Bureau of Mines, has returned to headquarters at Washington after spending more than a week in the East Texas field gathering data on the reservoir pressure.

E. DeGOLYER has purchased a home in Dallas and will move his family from Montclair, N. J., within a few months.

TOM B. ROMINE, geologist for Sinclair Prairie Oil Company in the Corpus Christi area, has been transferred to the southern district headquarters at Fort Worth, and will be succeeded by Dale Benson, who was formerly stationed at Amarillo.

J. HOWARD PEW, Sun Oil Company, Philadelphia, has been appointed chairman of the American Petroleum Institute's Central Committee on Tanker and Barge Transportation for 1936. Robert F. Hand, Standard Oil Company of New Jersey, New York, is vice chairman, and D. V. Stroop, of the Institute's staff, is secretary.

Members are: J. V. Blake, The Pure Oil Steamship Company, New York; F. M. Bynum, C. D. Mallory & Company, New York; H. A. Gilbert, Oil Transfer Corporation, New York; William Groundwater, Union Oil Company of California, Los Angeles; W. F. Jones, Gulf Oil Corporation of Pennsylvania, New York; A. M. Kelley, Richfield Oil Company of California, Los Angeles; R. K. Kelly, Tide Water Oil Company, New York; Charles Kurz, Pennsylvania Shipping Company, Philadelphia; and J. J. Maguire, Socony-Vacuum Oil Company, New York; J. H. McEachern, Standard Oil Company of California, San Francisco; T. Rieber, The Texas Company, New York; J. K. Robison, Sinclair Navigation Company, New York; Chris Storey, Cities Service Transportation Company, New York; R. C. Tuttle, The Atlantic Refining Company, Philadelphia; A. O. Woll, General Petroleum Corporation, Los Angeles, and G. D. Zeh, Associated Oil Company, San Francisco.

PASCUAL ORTIZ RUBIO, former president of Mexico and now in charge of Compania de Petroleo Mexico (Petromex), which is developing the Mexican government's national petroleum reserves, is in New York for two weeks. He is accompanied by his assistant, Manuel Zevada.

J. W. BRADBURY, general agent of Mexican Gulf Oil Company at Tampico, Mexico, has been in Mexico City on a business trip.

E. T. MONSOUR, geologist with Huasteca Petroleum Company (Standard Oil Company of New Jersey) at Tampico, Mexico, is in the United States on a business trip.

J. E. BURDEN, of Sheldon & Burden, drilling contractors of Tampico, Mexico, is in the United States on a brief business trip.

T. B. BURRIS, sales engineer for the Foxboro Company, has returned to the plant at Foxboro, Massachusetts, after a stay of several months in South America. He is expected to return to the Mid-Continent headquarters in Tulsa at an early date.

MAX E. LANDRY, 1228 West Main Street, Oklahoma City, has been appointed sales representative in the Mid-Continent area for the Buffalo Gasoline Motor Company of Buffalo, N. Y.

FRED MORGAN, independent operator and drilling contractor during the boom stage of the Oklahoma City pool, was an Oklahoma visitor during the week He is now operating in Michigan.

ROBERT M. WHITESIDE, in charge of strategraphic work and for the past seven years connected with the geological department of Shell Petroleum Corporation, has resigned and after a vacation will enter the consulting field with headquarters in Tulsa.

E. H. MOORE, head of the E. H. Moore, Inc., owners of a large amount of productive acreage in the Fitts pool of Oklahoma, and Mrs. Moore, recently sailed from the West Coast for a vacation trip to South America.

CARL WALTER, formerly of Denver, is Continental Oil Company's new Kansas district scout. He succeeds J. C. "Jake" Julian who has been transferred to the land and leasing department. Julian was for many years in the scouting department of Skelly Oil Company.

L. H. PRICHARD, Anderson-Prichard Oil Corporation, and Mrs. Prichard have returned to Oklahoma City after spending a vacation in Mexica City, Havana and other points.

IVAN S. SOLNIKOV, Carter Oil Company district petroleum engineer in the Seminole district, will be transferred April 1 to become engineer in charge of field operations in the South Burbank Unit in Osage County. He succeeds Ray Kollar, resigned. Evan Just, Oklahoma City district engineer for the company succeeds Solnikov at Seminole and Bernard M. Moroney succeeds Just at Oklahoma City.

D. B. DOW, in charge of engineering operations for Indian Territory Illuminating Oil Company in the Oklahoma City district, has returned after a recent business visit in St. Louis.

COOPERATING

Texas Louisiana officers confer about Rodessa

Austin, Texas.—A cut of 100 barrels per day in the allowable of the Rodessa field was announced last week by Railroad Commission Chairman Ernest O. Thompon.

Thompson said that this was in line with a similar reduction made by Louisiana Conservation officials, with whom he had conferred.

At a conference in New Orleans, Thompson said that he found Louisiana officials very much inclined to cooperate with Texas in an effort to adjust regulations for the Rodessa field in a manner that would be satisfactory to both states and prevent the possibility of conflicting orders in the field.

He said that the governor of Louisiana assured him no excess oil would be run from the Rodessa field, and that 10 men had been employed to maintain a check on conditions there.

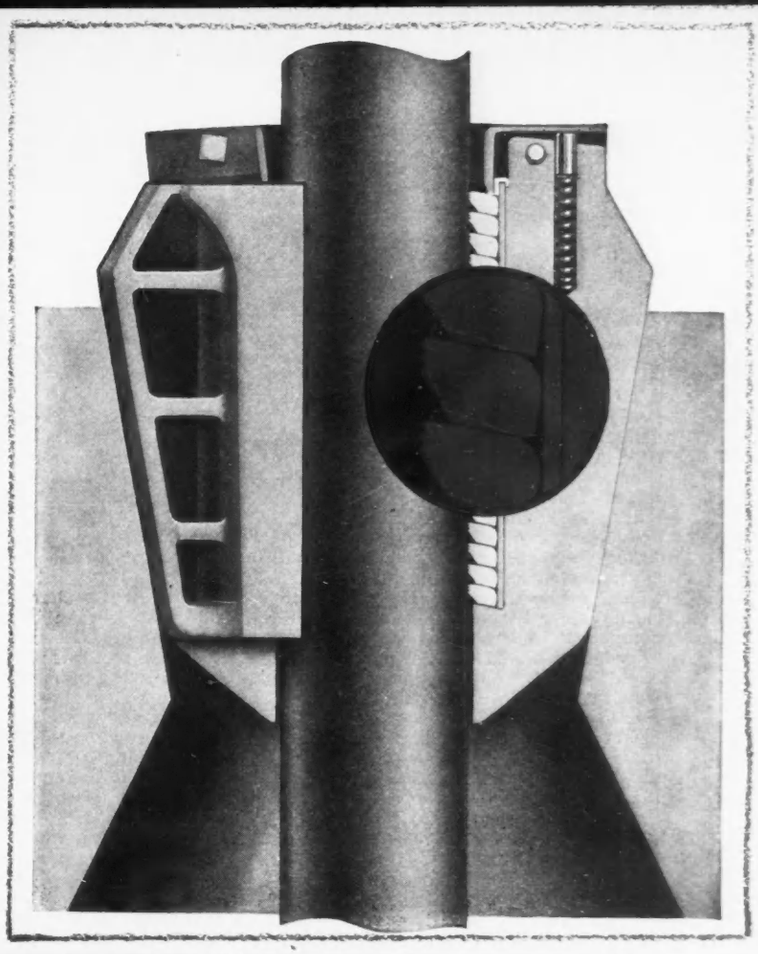
Thompson also stated that the Louisiana board was now engaged in a study of Texas conservation laws, and that they planned a legislative program along similar lines to be considered at the next regular session of the Louisiana legislature.

HOUSTON A.P.I. MEET

Houston.—The members of the Houston Chapter of the American Petroleum Institute, Division of Production, will hold their regular meeting on Thursday evening, March 26th, 1936, at 7:30, in the Auditorium of the Houston Chamber of Commerce.

The program for the evening will include a topic on Speeds of Rotary Drilling, and a motion picture on current oil field operations.

It is estimated that there are 3200 trained research workers employed in the petroleum industry, an impressive increase from the modest figures of the first survey made in 1920 which listed only 117 trained research workers in petroleum laboratories.



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Financial Results

MORE COMPANIES GIVE OUT REPORTS ON PAST YEAR

FIGURES have been made public lately on the earnings of several oil companies in addition to the reports carried in these columns last week.

Socony-Vacuum Oil Company estimates that 1935 net earnings, after taxes, approximated $22,500,000 after deducting a non-recurring charge of $2,900,000 representing premiums paid and unamortized discount on bonds retired during the year. Reported net earnings for 1934 were $24,121,297. The company's annual report with final figures for 1935 will not be finished until about May 1, as usual, because of the world-wide scope of the business. Funded and long-term debt on December 31, 1935 (including bank loans used to retire bonds) was approximately $77,000,000, or $8,000,000 less than at the beginning of the year. Cash and marketable securities at the end of 1935 were estimated at $70,000,000, an increase of $11,400,000 for the year. The company has disbursed dividend payments of 20 cents a share, declared February 4, 1936. The next meeting of directors for considering dividends will be held in August.

Phillips Earnings Up

Phillips Petroleum Company has issued its annual report for 1935. The report shows net profit, after all charges except for reserves and retirements, of $28,727,745.76 or $6.92 per share, an increase of about 37 percent over the 1934 earnings. After retirements and reserves for depreciation and depletion in the amount of $15,306,042.46 (equivalent to $3.69 per share), the net profit was $13,421,703.30, equal to $3.23 per share. This was an increase of more than 133 percent over the 1934 net profit of $5,757,308.50, or $1.38 per share. During 1935 the company paid dividends of $1.25 per share, or a total of $5,188,779.75. The company subsequently paid a dividend of 25 cents and an extra dividend of 25 cents, on February 29, 1936.

The Phillips Petroleum Company's crude oil production showed an increase over that in 1934, and increases were shown also in crude runs to stills, gasoline production, natural gas production, and production of gasoline from natural gas. In the marketing division there were increases in both gallonage and value of products sold, while operating costs were reduced, resulting in an increase in division earnings. The statement is made in the annual report that the Phillips company "is perhaps the most thoroughly integrated of any in the industry, as it produces and has sufficient reserves of raw materials for every department of it business, and an excess for the trade."

Atlantic's Profit Lower

The Atlantic Refining Company reported for 1935 net profit of $3,970,598, after all deductions, equivalent to $1.49 a share on 2,664,901 shares of $25 par capital stock, excluding 31,741 treasury shares, against net of $5,512,105 or $2.07 a share on 2,664,902 shares in 1934. The company showed net profit of only $255,378 in the first half of the year, with selling prices for gasoline and other refined products low in its territory in the east; but the earnings then turned upward sharply. The smaller profit in 1935 than in 1934 was attributed to increased costs of crude oil and other materials purchased, higher intangible development costs in regard to drilling, and a foreign exchange loss. The company indicated that the margin between raw material costs and product values for 1935 was not only smaller than in 1934 but the smallest in its history. The company's gross operating income in 1935 increased $5,417,000 to $101,535,075, but costs, operating expenses and taxes rose $5,374,789 to $86,209,874.

News of Other Companies

Red Bank Oil Company for 1935 reported net loss of $43,169, after interest, depreciation, etc., comparing with net loss of $40,734 in 1934. At the annual meeting at Portland, Maine, April 1, the stockholders will be asked to approve an option agreement with H. Walter Bluementhal, a director, calling for sale by the latter of 6000 acres to the company. The acreage is principally in Lee and Burleson Counties, Texas, and Cleveland and Oklahoma Counties, Oklahoma.

Sterling Oil & Refining Corporation, producing company at Houston, held an annual stockholders' meeting March 16 and all directors were reelected. They include R. S. Sterling, chairman of the board; Walter G. Sterling, president; E. E. Watts, vice president; M. Manning, vice president; Charles G. Hooks, H. D. Baker, Ben G. Barnett, and A. A. Sterling. Miss Lee Bryan was reelected secretary. This was the first meeting of the stockholders since organization of the company about a year ago. The company holds extensive acreage in the Texas Gulf Coast region.

Skelly Oil Company's annual report shows that earnings of that concern for 1935 were the best since 1929. The net profit was $2,585,849 after interest, depreciation, depletion, federal taxes, etc., equal to $2.16 a share on 1,008,548 shares of $15 par value common stock, after allowing for annual dividend requirements on six percent preferred stock. In 1934 the company had net profit of $713,577 or 30 cents a common share. In 1933 there was a loss of $820,534. Par value of the common stock was reduced from $25 to $15 by vote of the stockholders January 3, 1936.

For 1935 Texas & Pacific Coal & Oil Company reported net income of $23,640, the first profit in six years. The $23,640 of profit was shown after federal taxes, interest, depreciation, depletion, cancelled and surrendered leaseholds, and other charges, and was equivalent to two cents a share on 88,236 shares of capital stock of $10 par value, excluding 44,166 shares in the treasury. This profit compared with a net loss in 1934 of $248,270, and with a loss of $556,583 in 1933. The company's net interest in crude oil production and runs in 1935 amounted to 1,320,021 barrels, and during the year the company's underground crude reserves were substantially increased, according to J. R. Penn, president.

Standard Oil Company of Kentucky reported for 1935 net profit of $2,197,808 after depreciation, federal taxes, and so forth, equal to 84 cents a share on 2,604,800 shares of capital stock of $10 par value. In 1934 the profit was $2,599,466, or 99 cents a share. The net sales in 1935 were $40,257,958, compared with $37,660,682 in 1934.

H. F. Wilcox Oil & Gas Company and subsidiaries showed net loss for 1935 amounting to $258,495 after taxes, interest, depletion, depreciation, property abandonments and other charges, compared with net loss of $416,164 in 1934.

Bonds To Be Retired

Shell Union Oil Corporation has called for redemption April 17 all of the $22,990,000 five percent bonds of 1947 at 102, and Shell Pipe Line Corporation at the same time will redeem all the $24,126,500 outstanding 5's of 1952 at 102½. The bonds are to be paid off from proceeds of the new $60,000,000 issue of 3½ percent Shell Union bonds.

Stockholders of Atlantic Refining Company will vote at annual meeting March 24 on the proposal to issue 148,000 shares of convertible preferred stock, Series "A", and to use $14,000,000 of the proceeds for purchase prior to and payment at maturity of the company's outstanding $14,000,000 five percent bonds, due July 1, 1937.

A. I. M. E.

Austin, Texas.—E. DeGolyer was the principal speaker at the sectional meeting of the American Institute of Mining & Metallurgical Engineers at Texas University on Tuesday of last week.

He outlined the history of the development of scientific methods of exploration for petroleum, and pointed out the necessity for divorcement of this branch of the industry from the production end.

He addressed a meeting of some 300 members of the Institute and their friends at a banquet held on the campus of the University of Texas.

L. C. Uren, petroleum engineering professor of the University of California and Harry Powers, chief petroleum engineer of Gulf Oil Corporation in Oklahoma, also addressed the meeting on various phases of educational training for the petroleum engineer.

Plans were announced for a similar gathering at College Station next year with engineering students of Texas A. & M. College as hosts.

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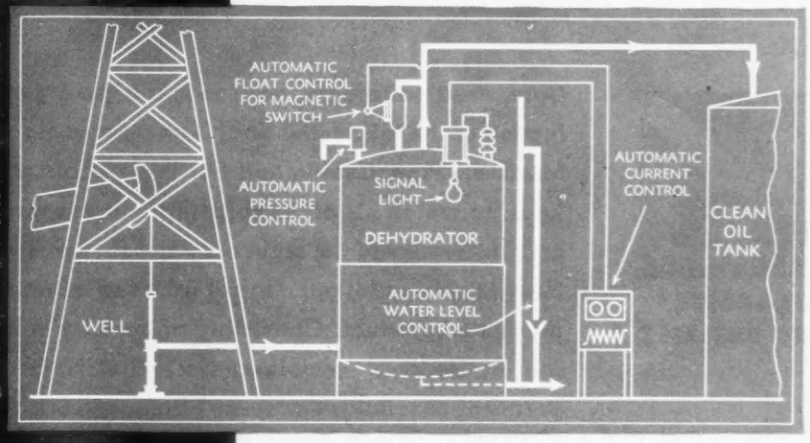

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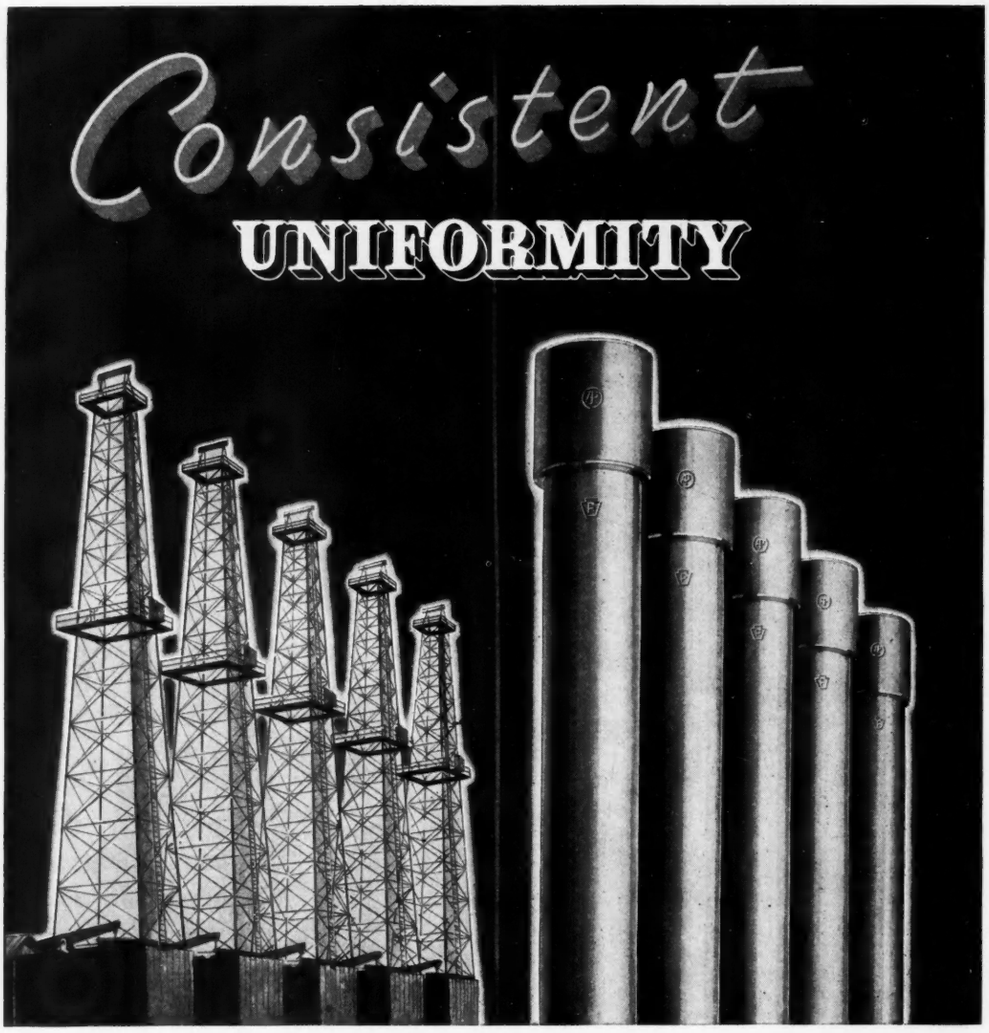

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Pipe Line Delivery End Protection Is Needed

ELIMINATION OF OCCASIONAL WATER-HAMMER DAMAGE WOULD PAY FOR SAFETY DEVICES

By ELTON STERRETT, Engineer

APPROXIMATELY once each 17 months on the average pipe line carrying crude oil out of the East Texas field, a gate at the delivery end is closed against the stream. This sudden shutting off of the flow causes the phenomenon known in hydraulics as "water-hammer", and which makes its presence known by damage to the line, usually at or near the point of sudden closure, though the effect may carry through the entire line and find the breaking point at or near the station.

The damage resulting from water-hammer ranges from the comparatively simple rupture of a light section of pipe to the complete disrupting of the receiving end manifold. In one instance the entire casting of the gate thus suddenly closed was carried away as cleanly as though cut with gigantic shears. It was found a good three feet away from the position it had normally occupied—having been forced through water-soaked ground for that distance and bending the six-inch line to which it was attached, solely by the force of that initial hammer blow, as, once the casting had ruptured, the oil being pumped could escape to the trench and find its way to ground level against only water pressure of three feet.

Another case of breakage was met on a line normally operating with a booster station midway between tank farm and pump station. The result here was loss of the use of its booster station through the burning out of the bank of transformers powering its motors. As the oil being pumped was urgently needed, temporary orders were issued lifting the line's maximum operating pressure from 650 pounds per square inch to 800. A tank change and a new man located midway of this high-pressure run did the rest. The wrong gate was wheeled first, being spun shut against the normal tank farm pressure of perhaps 20 pounds per square inch, which set up a destructive water-hammer that broke loose the gate just closed, swung the end of the main line seven feet out of alignment, and cracked gate castings or damaged five other gates in the delivery manifold hook-up.

Taking the case of this last mentioned tank farm, in which 300-pound fittings had been used on the end of a line 54.45 miles in length and operating normally under 650 pounds pressure and putting through 1800 barrels per hour under the emergency order allowing 800 pounds, a velocity of flow through the 10-inch pipe is found from the following extract from a table of velocities:

U. S. Gallons Per Minute

Dia. Pipe inches	800	1000	1250	1500	2000
6	9.078	11.347	14.184		
8	5.105	6.382	7.978	9.571	12.768
10	3.268	4.085	5.106	6.127	8.170

which gives a value of 5.106 feet per second as the velocity at 1800 barrels per hour, corresponding to 1250 gallons per minute.

The definition of water-hammer as given in Marks' Mechanical Engineers Handbook is "Excess pressure equals velocity times square root of modulus of elasticity of fluid times weight divided by gravity". The formula covering this is

$$P = V\sqrt{\frac{Ew}{g}}$$

$$P = 377.9$$

Where $E = 300{,}000$ per sq. ft.
$w = 50.79$ lbs./cu. ft.
$G = 32.2$
$V = 5.106$ ft./sec.

To obtain values per square inch, the modulus of elasticity E must be divided by 144, after which, substituting in the formula, a value of 377.9 pounds per square inch is obtained.

As the modulus of elasticity of crude oil varies through a wide range depending on the gravity of the oil, the amount of solid matter carried by it, the amount of gas carried by it, temperature and a number of other minor contributing factors, but at its upper limit approaches that of water as its limit, the modulus value for water is used in the formulae cited. This value would be most nearly approached if the stream be from a tank that had stood long enough to lose most of its entrained gas, and which had then been pumped through plunger pumps under a relatively high suction head—to avoid the formation or release of gas bubbles from the oil during the suction stroke of the pump.

Since the simpler form of formula fails to take into account the diameter or elasticity of the line carrying the oil, a more complicated formula is also given, to include these factors, here

$$P = V\sqrt{\frac{w}{g}\left(\frac{EE't}{tE' + dE}\right)}$$

Where $E' = 30{,}000{,}000$ per sq. ft.
$t = 0.365''$ pipe thickness
$d = 10''$ pipe diameter

$P = 334.8$ pounds per sq. in.

in which, solving after reducing the value of both modulae given to a square inch basis, the momentary value of *excess pressure* is found to be 334.8 pounds

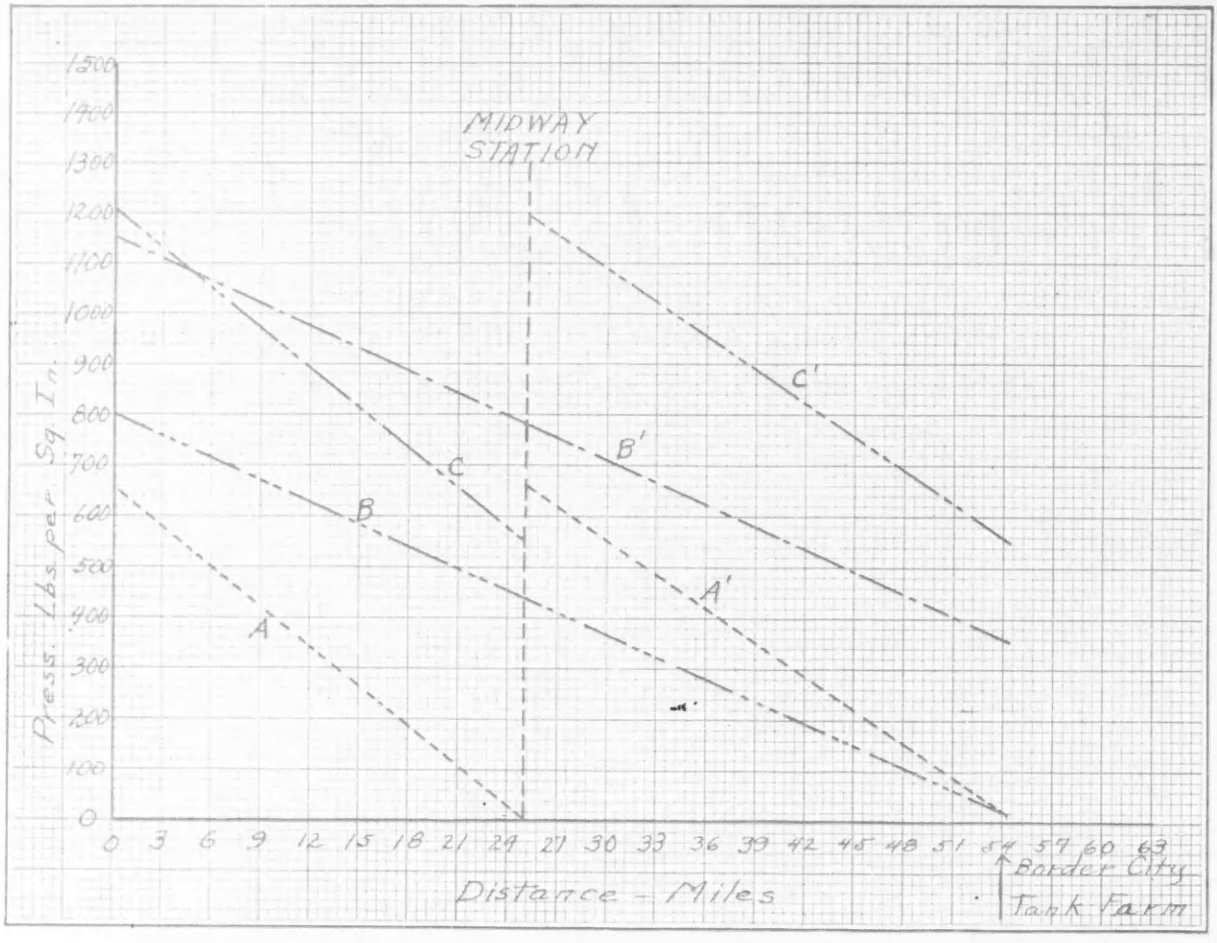


FIGURE 1

Graphic presentation of excessive pressures sustained through water-hammer when line is under high line strain. Probable pressure at any point may be determined from curves.

per square inch—exceeding the safe or test value of the fittings in the tank farm by ten percent over and above any operating or line pressure already present.

There exists a general belief that safety or overload equipment at the pumping end is ample to relieve any pressures set up by gates closed at tank farms which may be 65 miles distant according to East Texas pipe line figures. Two standard formulae are available for determining the speed of travel of the water-hammer pressure wave, the first ignoring pipe elasticity, the second including it.

$$S = \sqrt{\frac{Eg}{w}} \qquad \text{and} \qquad S = \sqrt{\frac{Eg}{w}\left(\frac{E't}{tE' + dE}\right)}$$

$S = 4361.9$ ft./sec. $\qquad S = 3863.2$ ft./sec.

Using the same values for the symbols as were applied in the determination of pressures, the speed of a wave through the oil would be 4361.9 feet per second in an absolutely rigid pipe, or 3863.2 feet per second in the pipe actually used.

Whether or not the main line pump station can relieve this excess pressure, depends upon the strength of the line up to that point, as the excess pressure generated by the water-hammer must be superposed on that to which the line is already being subjected during the pumping. Taking the main line whose water-hammer break was last described, and plotting pressures against distance, if the slight pressure variations occasioned by irregular pipe line gradient be considered as averaged through the entire length, both pumping and water-hammer may be plotted as straight line pressure curves.

Figure 1 shows graphically the initial or pump station pressure on the line at any point, and the resultant or total pressure it must withstand when the high water-hammer value is superposed. Curve B shows the line pressure carried when the station was pumping 1800 barrels per hour without help from the booster station at Midway. To this, taking the value obtained when the excess pressure equation was solved for an elastic pipe, is added the value thus obtained, which takes the position of the Curve B', from which it is apparent that the initial 25 miles—the entire distance to the booster station—is subjected to a momentary pressure wave in excess of the official maximum. The highest pressure, at the pump discharge gates, reaches the figure of 1150 pounds per square inch.

Had the line been operating under normal conditions at the time the delivery end gate was closed, the lines of pressure would have followed Curve A to the intake of the booster centrifugals, risen vertically to their output pressure, and descended along Curve A' to the tank farm. Then, as the throughput with the booster in operation was nearly double that

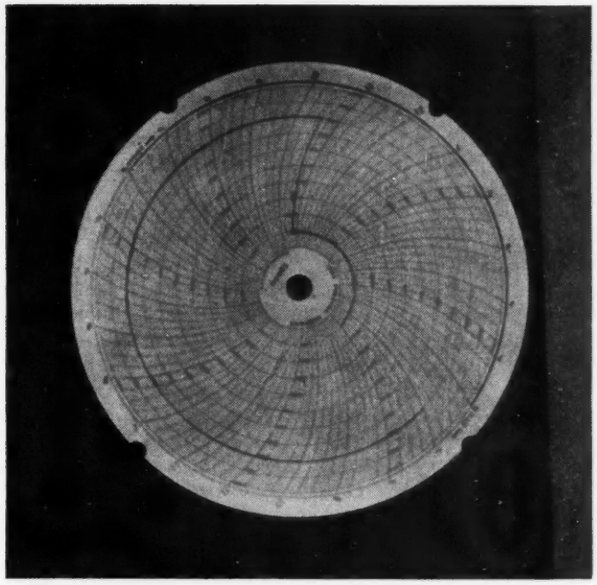


FIGURE 2
The recording gauge chart of the day when the break occurred. No variation visible when pressure rose to rupturing point.

when bucking pressure through the line length of 54.45 miles, the velocity of oil flow per second, or V of the first two formulae, jumps from the value of 5.106 to 8.170 feet per second.

Substituting this higher value in the two formulae, the excess pressure is determined at 604.6 pounds per square inch for rigid pipe, and 535.7 pounds per square inch for elastic line.

Plotting this latter value on the chart, the maximum summation of pumping and water-hammer pressures has this value of 535.7 pounds plus perhaps 10 pounds tank farm pressure, rising as the Curve C′ is followed back to the booster station to a 1200-pound figure. Should this excessive pressure be able to pass through the centrifugals, it would drop to the figure obtained at the tank farm, again rising progressively to a 1200-pound shock at the pump discharge gates of the main station.

That such breaks as occur from water-hammer do not give the station men warning is demonstrated by Figure 2, which shows the chart from the recording pressure gauge in the main line pumping station of the company whose break was used for determining the values plotted in Figure 1.

The tank change through which the trouble arose was scheduled for exactly 10.30 p.m., watches on both ends checked to the master clock in the oil dispatcher's office, and the chart clock in step with other time pieces involved. Even under magnification, the curve on the chart shows no rise in pressure from the time at which the tank change was scheduled until almost five minutes later, when the tank farm gauger got word through to the station engineer to shut-down.

Since, from the graph in Figure 1, an excess pressure reaching the figure of 1150 pounds would have been reached in the station 74.41 seconds after the closure, had the line held, it is evident from the chart that the damage at the tank farm end was instantaneous, and that the pressure at the station, pumping through 54.45 miles of line and discharging at ground level in the farm was so closely equal to that carried to fill the tank there that it made no change in the curve gradient. Had there been any change evident, it would have been downward, in which case the slight drop occasioned would have been interpreted as representing that due when pumping into an empty instead of a full tank.

It is not necessary that a delivery end gate be spun shut to what approximates instantaneous closure, though this comes close to what occurs when the standard type of gate is closed against the usual low pressures obtaining on tank farms, but the same effect of water-hammer may be shown to be present if the time of closing the gate be less than twice the time required for the pressure wave to traverse the line. Written as a formula

$$T_c < \frac{2L}{V_w}$$

Where T_c = Time of closing, in seconds
L = Length of pipe line, in feet
V_w = Velocity of pressure wave, in ft./sec.

$T_c < 146.8$ seconds

Again using figures from the pipe line covered in Figure 1, and substituting these values in the formula, it appears that the shock of water-hammer might be expected if the time of closing the gate be less than 146.8 seconds, or not to exceed approximately 2½ minutes.

That more main pipe lines are not ruptured by the occasional wrongly closed gate such as will occur on even the best-manned tank farms is due largely to the fact that many of the longer lines are segregated into comparatively short units, so far as pressure build-up is concerned, by the system of pumping used. The discharge from one station, while being into the pump suctions of the next in line, is also admitted to an "over-and-under" tank which floats on the line and which, in case of an unpremeditated shut-down, serves as relief to take the flow which otherwise would be suddenly checked, and whose kinetic energy, or energy of motion, would otherwise be transformed into destructive pressure.

On several pipe lines where the safety or water-hammer unloading feature of a tank is used for protection, a branch from the main header is connected into a 1000-barrel tank, and inside the tank is connected a gate protecting the safety or "break-out" flange used. This blind flange is bolted in place in the usual manner, gasket and all save that the nuts used on the holding bolts, instead of being wholly of steel, carry a lining of ordinary printer's type metal which, under test, is found to shear with flange and bolts used, when the pressure behind the flange approximates 100 pounds per square inch.

When so held in place, this flange will blow clear if the pressure reaches the maximum withstood by the "strip-out" nuts, allowing the oil to flow into the emergency tank. As a wrongfully closed gate is usually discovered within a few seconds of the time the error is made, the capacity of the tank is ample to care for any flow that may be diverted to it, even if the error run unchecked until time for the next gauge on the (supposedly) receiving tank. The valve behind the safety flange fitting is placed so as to be accessible only after opening a locked hatch on the tank, insuring against accidental or unauthorized closure, and is used to cut off the flow stub while the blind flange is being replaced.

On three tests made of this flange after being installed, with pressure gauges on the line at the manifold and at the tank used for securing the effect of water-hammer, it was found that the maximum pres-

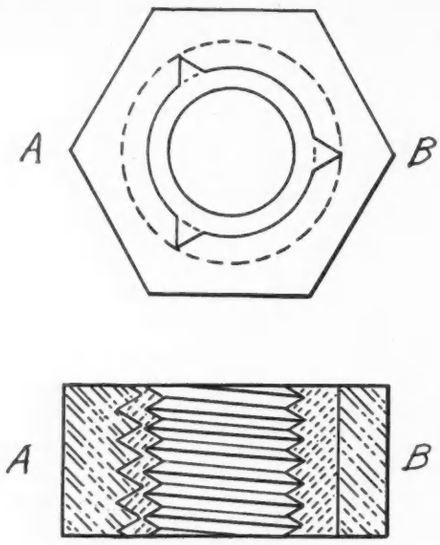


FIGURE 3
Plant and section of "break-out" nut used to allow safety flange to release excess pressures.

sures reached were 102, 97 and 62 pounds, respectively. The low figure reached on the third test was ascribed to the fact that the tightening of the "strip-out" nuts was done with a long-handled wrench and not under the careful pressure applied in the other two instances, when care was taken to bring the nuts up snug, yet not to overstress the metal forming the threads.

A detailed drawing and section through such a safety nut is shown in Figure 4. Here a ¾-inch nut of standard cold-pressed steel is taken and drilled out and tapped for ⅞-inch bolt threads. After threading, three evenly spaced 60-degree Vees are cut out of these threads, as shown by the V-shaped notches within the dotted circle in the plan view.

After being thus worked over, the nut is poured full of molten type metal, chosen because it possesses the quality of expanding slightly upon cooling and thus insuring a tight fit within the retapped nut matrix. When the molten metal is cooled it is drilled and tapped for its former bolt size of ¾-inch.

If, as in the case cited, the standard nut gives more holding power on the flange than is desired, or in other words, runs too high the "break-out" pressure, it may be faced off and the thickness reduced until the amount of thread in the type metal gives exactly the value desired.

On some eastern pipe lines are found air bottles installed on the delivery ends of its lines when not protected by surge tanks. These bottles resemble and are basically similar in design to those described in the article "Air Bottles for Killing or Cushioning Line Vibration" appearing in the eptember 23, 1935, number of THE OIL WEEKLY, with the exception that a vertical check is placed in the riser above the shut-off valve and a pressure of 150 pounds per square inch maintained in these bottles above the check.

Under normal operating conditions this compressed air in the bottle is kept confined by the check, while the oil flow at the usual tank farm pressure goes on below it. Should a gate be closed so as to set up water-hammer, however, this momentary pressure in the line rises until it is sufficient to lift the check and permit the oil surface to work against the cushioning air in the chamber and absorb the remainder of the shock.

With such a device connected so as to be always on the incoming line, if the gauger or other tank farm attendant fails to note his error, the dangerous water-hammer blow has been reduced to a maximum of 150 pounds. The line then gradually fills and builds up its maximum pressure; which, eventually, depending upon the length and elasticity of the pipe, will make its presence known on the recording gauge and at the relief valves and other safety devices in the main line pump station.

The principal drawback with such a "shock absorber" lies in the factor of supervision. With records showing its average use to be once in each 17 months, it is easy to overlook the bottle in the ordinary round of station routine. If not kept constantly charged, a slow leakage of the compressed air is practically certain to take place, leaving the bottle with greatly reduced or even bare atmospheric pressure within it to take up the shock of a suddenly closed gate. Under such a condition the bottle has the same objection as is urged against the old type of unprotected bottle on the pumping end, namely the danger of favoring Diesel-engine-like action and thus igniting the highly compressed mixture of air and gas present in the bottle.

The danger of explosion of the delivery end bottle is eliminated by one company where the tank farm is adjacent to the refinery using the oil pumped. A small compressor, automatically started and stopped as the bottle pressure drops and then reaches predetermined values, maintains the air pressure at the safe figure. Additional safety is obtained by having this compressor draw its supply from the stack breeching of the various refinery boilers, a loaded damper being fitted into each of the breeching branches of the suction line so that the pump can draw its supply only from a boiler being fired. In this way the bottle, instead of being charged with air, is pressured with an inert gas—mainly CO_2—which has a flame-extinguishing rather than a flame-propagating effect even when highly heated as it would be under sudden high compression.

Interlocking gates, such as are found in some marine pipe line terminals, in which one gate opens as the other is being closed, are effective against water-hammer; but as a rule are too expensive in first cost, installation and maintenance to be considered in laying out the usual pipe line hook-up.

When the cost of even one water-hammer break, including loss of oil, damage to tank farm equipment, and lost pumping time, be checked against the expense of installing some type of shock eliminator, it would seem that every pipe line carrying pressures which would exceed the safe working pressure for its line or fittings would include either a "break-out" flange or a bottle among the necessary units in a tank farm. In the case of the break-out flange illustrated the only cash outlay incurred was for filling the nuts to hold the flange with type metal. This was done by taking the bored and tapped out nuts (after carefully cleaning them of all grease and oil) to the nearest newspaper publishing plant, where the nuts were weighed, then poured full of type metal, reweighed, and the amount of type metal used charged for at usual rates. The cost of such strip-out nuts was six cents per nut.

Methods of Restricting Production in Oklahoma

ALL REGULATIONS ARE BASED UPON A NUMBER OF CONSERVATION FACTORS

By W. J. ARMSTRONG, Conservation Officer,
Oklahoma Corporation Commission

THE first oil produced in what is now Oklahoma, other than through its numerous surface seepages, apparently was in the Chelsea area of Rogers County, in the northeastern part of the state in 1891. For several areas is claimed the distinction of having produced the first oil in commercial quantities. As of January 1, 1936, the state had produced approximately 3,899,236,000 barrels of oil, for which the producers and royalty owners received an average of $1.37 per barrel or a total of $5,341,953,320, placing the petroleum industry second only to agriculture in the state. To bring to possession this vast amount of oil 146,971 wells were drilled. Of this number, approximately 102,769 were oil wells, 11,718 were gas wells and 32,079 were dry holes. At present there are approximately 58,000 producing wells in 335 areas which are located in 45 of the state's 77 counties.

Oklahoma did not reach a place of prominence as a major producing state until 1907, when production was over 43,000,000 barrels. This figure was rapidly increased until in 1927 the production reached a total of 277,775,000 barrels. This figure has not since been equalled, due to restriction of production through state regulatory laws. In 1935, the state produced approximately 181,000,000 barrels of oil; of which 179,876,216 barrels reached the pipe lines as marketable oil.

First Proration Order in 1914

Oklahoma's first order restricting production was on July 1, 1914, when Order No. 829 was issued in connection with the Cushing-Drumright pool in Creek County, where more than 100,000 barrels of high gravity oil daily (in excess of the market demand) was being stored in earthen pits and dry creek beds in that and other areas of northeastern Oklahoma. Within a few months the production of oil in the Healdton pool of western Carter County had reached a point which almost duplicated the Cushing condition, and Order No. 843 was issued to restrict production to a maximum of 50 barrels per day from each lease. To more completely define the purpose and to uphold the orders and regulations of the Corporation Commission, the Oklahoma Legislature passed House Bill No. 168, said bill being enacted into law on February 11, 1915. This law authorized the commission to regulate the taking of oil from all common sources of supply within the state. The bill was drawn and the law passed at the insistence of a large number of independent operators, who found it difficult to obtain outlet for their production. As a result of the conditions in these two great producing areas, several million barrels of oil ran down the creek beds, evaporated in open storage, or was lost through seepage into the surface beds. On February 2, 1914, the posted price for Oklahoma crude was $1.05 per barrel. On September 22 of that year, the price was cut to 55 cents per barrel; and on February 15, 1915, it was further cut to 40 cents. This price prevailed until August 2, 1915, when a 10-cent increase was posted and by December 14, 1915, the schedule had been built up to $1.20 per barrel, the highest that had been paid for Oklahoma oil in more than 10 years. This increase was due largely to the effect of the World War, but to claim that a part of it was due to restrictive measures set up by the Corporation Commission does not seem unjust.

After June, 1915, when conditions at Cushing and Healdton had been largely corrected, and until June, 1921, the law was not invoked. At this time production in the Hewitt pool of Carter County became a factor in the crude oil market, and an order was issued to place certain restrictions on the drilling of new wells. Production was discovered in the Seminole district early in 1926. During the last week in July, 1927, overproduction reached an acute stage, when the daily average production for Seminole County was 562,000 barrels per day. Most of this was from what was called the Greater Seminole district, which comprised about eight pools, all which were discovered and developed in rapid succession. Wells, already initially large, were shot heavily in a horizon of greater than average porosity.

Shortly after discovery of oil in the Seminole district, the posted price for 36-gravity Oklahoma crude was $2.29 per barrel. On November 27, 1926, the price was cut to $1.90 and by March 12, 1927, it had been reduced to $1.28. Seminole district operators, seeing a rapidly increasing overproduction and a corresponding rapidly decreasing crude oil price, were in a mood receptive to the suggestion of some solution. The Corporation Commission called a meeting of the operators to determine if anything could be done through cooperation of the state. It was suggested by

the operators that a move, legalized by the authority of the Corporation Commission, be made to curtail production and it was their suggestion that an umpire be selected to administer a plan of curtailment. Ray M. Collins, pioneer Oklahoma operator of Tulsa, was suggested for the position. As a result of the meeting, a plan was drawn up which provided that production in the Seminole district be reduced to 450,000 barrels per day, and eliminated the practice of shooting new wells for a trial period of 60 days. The plan provided also, that Collins be appointed as umpire and that he have an advisory committee composed of five practical Seminole operators. On August 9, 1927, the plan was incorporated in an order of the commission, and issued to the operators as Order No. 3944. This was the first restrictive order for the great area, which later was to comprise more than a dozen pools and to yield ultimately close to a billion barrels of high gravity oil.

First Statewide Order in 1928

The Corporation Commission issued its first statewide restrictive order on September 8, 1928, when No. 4430 was promulgated, and on September 11, 1929, placed the first restriction on the Oklahoma City pool, when Order No. 4804 provided that all wells in the pool, excepting those making five percent or more water with the oil, be shut in for 30 days commencing at 7:00 a.m., September 12. No great difficulty was experienced in promulgating and enforcing further orders until May 16, 1932, when the Supreme Court of the United States in the case of Champlin Refining Company vs. Corporation Commission of Oklahoma et al upheld the right of the commission to restrict production, but held that the penalties provided by the statutes were void because they were vague and indefinite. In view of that decision it was impossible to enforce the statutes until a new law was enacted in April, 1933. In the meantime a great effort was made for voluntary proration, many of the operators in the Oklahoma City pool voluntarily closing in their wells for more than 60 days. The governor of the state declared martial law and called out the National Guard in an effort to assist the operators principally in the Oklahoma City pool, but notwithstanding these efforts, there was a great waste in the production of oil, the market was demoralized and the crude price quotation went to as low as 20 cents per barrel. Oil produced in violation of the regulations was reported to have been sold in large quantities at as low as 10 cents per barrel.

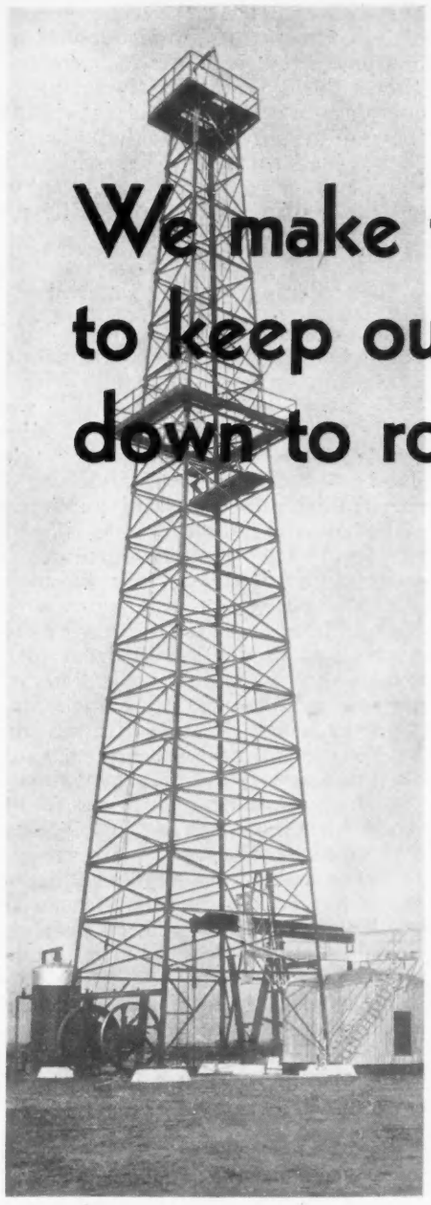
On April 10, 1933, House Bill No. 481 was signed by the governor, and immediately became law through inclusion of an emergency clause. It provided for a complete reorganization of the proration set up, clearly defined the various types of waste and specifically designated the penalties for violations. It provided for a proration umpire under bond in the sum of $50,000 at a salary not to exceed $6,000 per annum; an assistant proration umpire at a salary not to exceed $4,800 per annum; each to have had at least seven years experience in the production of oil; and a proration attorney at a salary not to exceed $6,000 per annum. Each of these positions are filled through appointment by the Corporation Commission. It further provided that the commission may, at any time when it finds the public interests will be subserved thereby, authorize the appointment of not more than 30 deputies to be selected by the proration umpire and not less than two-thirds of which number shall have had at least five years of practical experience in the production of oil. Not more than five deputies may receive $3000 each per annum and not more than 25 may receive $1800 per annum. Other personnel includes a chief clerk at not to exceed $2700 per annum; not more than eight stenographers, one or more of whom are assigned to the office of the proration attorney; and not exceeding eight clerks, including the chief clerk. Salaries of the stenographers and clerks are fixed by the commission, the salaries of the stenographers and clerks not to exceed $1500 per annum, excluding the chief clerk. The commission

TABLE I

Different Oklahoma classifications and present pools designated in each class

CLASSES AND POOLS UNDER EACH	No. of Producing Wells 1-1-36	January Potential	Percent of Potential Allowed	Minimum Allowable	Method of Taking Potential	Method of Determining Potential
Class A:						
Oklahoma City (Wilcox)	556	516,127	21.5	200	Thru Casing	6 hour Test, last 4 hours x 6
Class B:						
Oklahoma City (Simpson)	334	27,287	93	...	Casing	30 day gauges divided by 30
Seminole Proper et al	360	35,219	50	25	Casing	48 hour test divided by 2
Seminole City	215	14,165	93	25	Casing	30 day gauges divided by 30
Earlsboro Pools	359	16,320	93	25	Casing	30 day gauges divided by 30
Little River	278	16,162	93	25	Casing	30 day gauges divided by 30
East Little River	58	743	93	25	Casing	30 day gauges divided by 30
Mission	73	3,164	93	25	Casing	30 day gauges divided by 30
Searight	68	2,869	93	25	Casing	30 day gauges divided by 30
East Seminole	36	2,315	93	25	Casing	30 day gauges divided by 30
Maud	68	1,012	93	25	Casing	30 day gauges divided by 30
Asher-Wanette	43	769	93	25	Casing	30 day gauges divided by 30
Konawa	86	1,881	93	25	Casing	30 day gauges divided by 30
Sasakwa	17	1,168	93	25	Casing	30 day gauges divided by 30
Allen	226	6,412	93	25	Casing	30 day gauges divided by 30
Tatums	194	Capacity	Capacity	...	.....	30 day gauges divided by 30
St. Louis	529	31,888	65 85	25	Casing Water Leases	48 hour test divided by 2 7 day water test divided by 7
Sasakwa Townsite	8	4,741	28	25	Casing	48 hour test divided by 2
Class C:						
Crescent	28	64,310	7.3	100	Casing	4 hour test, last 3 hours x 8
Oklahoma City—Cleveland	24	6,378	25	100	Casing	6 hour test, last 4 hours x 6
Edmond	34	293,860	2	100	Casing	4 hour test x 6
Fish—Wilcox	38	112,919	5.7	25	Casing	6 hour test x 4
Fitts—Upper Simpson	216	671,188	4.6	75	Tubing	6 hour test, last 4 hours x 6
Grayson	11	7,513	13.2	50	Casing	12 hour test x 2
Keokuk Falls	27	22,387	7	25	Casing	6 hour test, last 4 hours x 6
Lucien	76	101,514	8.7	75	Casing	12 hour text x 1.88
Polo	32	48,685	5.5	75	Tubing	6 hour test, last 4 hours x 6
South Britton	5	28,850	*	100	Casing	4 hour test x 6

*Received Class D allowable in January.



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Worland

may also employ not to exceed two reporters at salaries not to exceed $2400 per annum.

Under the new law the Corporation Commission is given full authority to enforce proration schedules and has had no serious difficulties, the law having been held constitutional by the State Supreme Court. In order to provide for salaries and other expenses in connection with enforcement, the legislature passed House Bill No. 483, which provided for a levy of one-eighth cent per barrel on oil produced in the state. This law was subsequently held to be invalid on production from restricted Indian lands in Osage County. One of the distinct advantages of having the proration or conservation laws administered by the Corporation Commission is the fact that this commission was provided for in the state constitution, which prohibits district courts from enjoining orders made by the commission, therefore, any attack upon the orders must be made by direct appeal to the Supreme Court or proper proceeding in the Federal Court. Subsequently, House Bill 481 was amended and in all cases where the word "proration" appeared the word "conservation" was inserted.

Five Producing Classifications

Under the method of operation, pools of the state are divided into five classes; namely, Class A, Class B, Class C, Class D, and unclassified. Class A pools are those having peculiar conditions which prevent them from being grouped with other pools, but whose production is of such importance that it must be carefully restricted; Class B pools are those whose production has settled beyond the point where individual well records are necessary and the restriction is, therefore, determined on a lease basis; Class C pools include recent discoveries restricted on the well basis and still in the early flush stage; Class D pools include all wildcat producing wells and all the recently discovered pools; and unclassified pools include all those in the late settled or stripper stage. The South Burbank and Naval Reserve pools in Osage County are prorated by orders of the Corporation Commission and enforced by representatives of the Osage Indian Agency. Restrictive measures in these two pools are based largely on agreements among the operators. Under the statutes no well may be prorated if its production is below 25 barrels per day. Table 1 shows the different classifications and the present pools designated in each class with the exception of the unprorated group, a list of which pools would be too long to present herewith. This latter group is now producing approximately 153,000 barrels per day or 32 percent of the total daily production of the state.

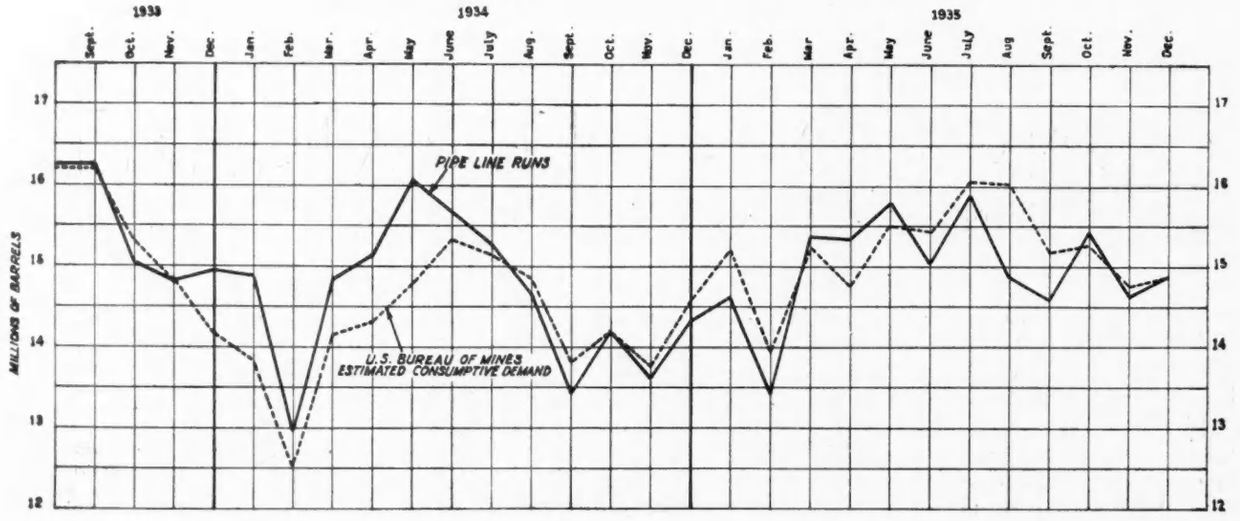
Method of Determining Market Demand

The statute under which proration operates in Oklahoma does not define how the Corporation Commission must determine market demand. Prior to September 8, 1933, when the Petroleum Code went into effect and the United States Bureau of Mines was designated to estimate the consumptive market demand, the Oklahoma Corporation Commission attempted to arrive at this figure by asking purchasing companies to make nominations of crude they desired to purchase from each common source of supply. This method was very unsatisfactory due to the fact that many of the purchasing companies would nominate more crude from areas where they or their affiliated companies had production in order to increase the runs from their individual wells. This was particularly true in the Oklahoma City pool. Since the Petroleum Code became ineffective with the voiding of NRA by the United States Supreme Court on May 27, 1935, it has been found that the estimates made by the United States Bureau of Mines for the consumptive market demand for crude in Oklahoma has been much more satisfactory and more accurate than under the previous practice of depending on nominations by the purchasers. For that reason the Corporation Commission has followed, as nearly as possible, the estimates of the United States Bureau of Mines, believing that these estimates, at this time, are the best evidence available as to the market demand of crude oil in this state.

Allocation of the oil to be produced by the different pools or common sources of supply and by the different leases and wells therein, is made on a

FIGURE 1

Showing Federal Allocations from September, 1933 to June, 1935 and United States Bureau of Mines Market Demand Recommendations from June, 1935 to January 1, 1936, along with Pipe Line Runs as indicated by records of Oklahoma Tax Commission.



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monthly basis. The commission has a hearing in which it determines the market demand and promulgates an order distributing the allowable to each common source of supply for the succeeding month. Immediately preceding this hearing the conservation officer contacts the purchasers of the state and has a general meeting to which all purchasers and producers are invited. At this meeting a thorough discussion is had of the problems at hand and the allowable for each common source of supply is gone over in detail. Recommendations are agreed upon and presented to the commission for its consideration. This system has proven more satisfactory to all concerned than the former practice of depending upon nomination by the purchasers. That by the present system the commission has been able to keep state production surprisingly close to the predetermined market demand is indicated in Figure 1, which shows allocations by the Petroleum Administrative Board from September 8, 1933, to June 1, 1935, and the recommendations of the United States Bureau of Mines from June 1, 1935, to the present, along with pipe line runs for the state of Oklahoma. The commission takes the attitude that conservation orders should be based on pipe line runs rather than estimated production, since the former is more reliable and represents the actual amount of oil which reaches the market.

The oil and gas conservation department issues reports on each prorated pool each month showing the overproduction and underproduction and the amount of oil to be produced from each pool each month. Also the amount of oil that can be produced from each lease, where proration is on a lease basis; and from each well, where proration is on a well basis. Purchasing companies help to enforce the proration schedules by taking only the amount of oil designated in the schedules.

Determination of Potentials

It is mandatory under the Oklahoma law that capacity of wells or of leases to produce oil in prorated areas be determined every six months. In the new and active areas it is impossible to take a 24-hour gauge with all the wells open at the same time. The most common method now in use, in the different common sources of supply, is to take a six-hour gauge, eliminate the first two hour's production and multiply the last four hour's production by six to arrive at a 24-hour basis. In most of the present large flush areas the commission has ordered that all wells be tubed with uniform tubing not to exceed 2½ inches in diameter and the potential taken through the tubing. In the Fitts pool this practice has been followed since early in the history of its development. In Class "A" pools the potential period begins on April 1 and October 1; Class "B" pools on January 1 and July 1; and Class "C" pools, February 1 and August 1. Class "D" pools are given a flat allowable of 100 barrels per well per day and are not gauged for potential. In addition to this, the discovery well in each Class "D" pool is permitted 15,000 barrels as a discovery allowable. From the standpoint of enabling the Corporation Commission to equitably apportion pool allowable to the various wells within the Fitts pool is the most ideal in the history of proration in Oklahoma. Bottom-hole pressure readings are taken in a group of representative wells each month and the pressure decline for the pool as a whole calculated therefrom. By the careful reporting

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of production from each well, it is possible to accurately determine the amount of pressure drop for any unit of production from month to month. Figure 2 is a graphic presentation of the pressure decline in that pool, along with the cumulative amount of oil produced at any date upon which the pressure readings have been taken.

Reports of production are required by both the producer and purchaser on all oil produced and run from each lease, where proration is on a lease basis; and from each well, where proration is on a well basis, in all prorated areas. Daily reports are required from the Wilcox sand zone of the Oklahoma City pool, but in all other prorated areas the reports are on a monthly basis. From these reports the oil and gas conservation department of the commission figures, each month, what is known as the "Over and Short Report" for each common source of supply. From an operating standpoint it is generally impossible to produce and run, each month, the exact number of barrels which have been allocated to the lease or well, there usually being a few barrels over or a few barrels under regardless of the diligence of the producer or purchaser in the attempt to abide by the orders. In this "Over and Short Report" this overage and underage is corrected the next month in determining the total allowable. All allowables in the different common sources of supply are based upon a percentage of the potential. In most areas there has been established a minimum allowable sufficient to justify the operation of a well. Due to potential gauges being taken six months apart and to rapid decline in some areas, it has been found, in many cases, that wells or leases will accumulate underproduction which the well or lease is physically incapable of making up in addition to the current allowable. This has been especially true in the Oklahoma City pool and the commission has cancelled several hundred thousands of barrels of underage in that area.

Spacing Law Is Passed

The Fifteenth Session of the Oklahoma Legislature passed a law known as House Bill No. 187, an amendment to the oil and gas conservation laws, which authorizes the Corporation Commission to establish spacing units within each new field or common source of supply. This law prohibits the commission from establishing a unit larger than one well to 10 acres, unless there is a unanimous agreement of at least 80 percent of the operators owning at least 80 percent of the acreage in the area in question. Under this law, spacing units have been established in the Edmond, Fitts (Upper Simpson) and Jesse pools. One well to each 10 acres has been the basis of these spacing units.

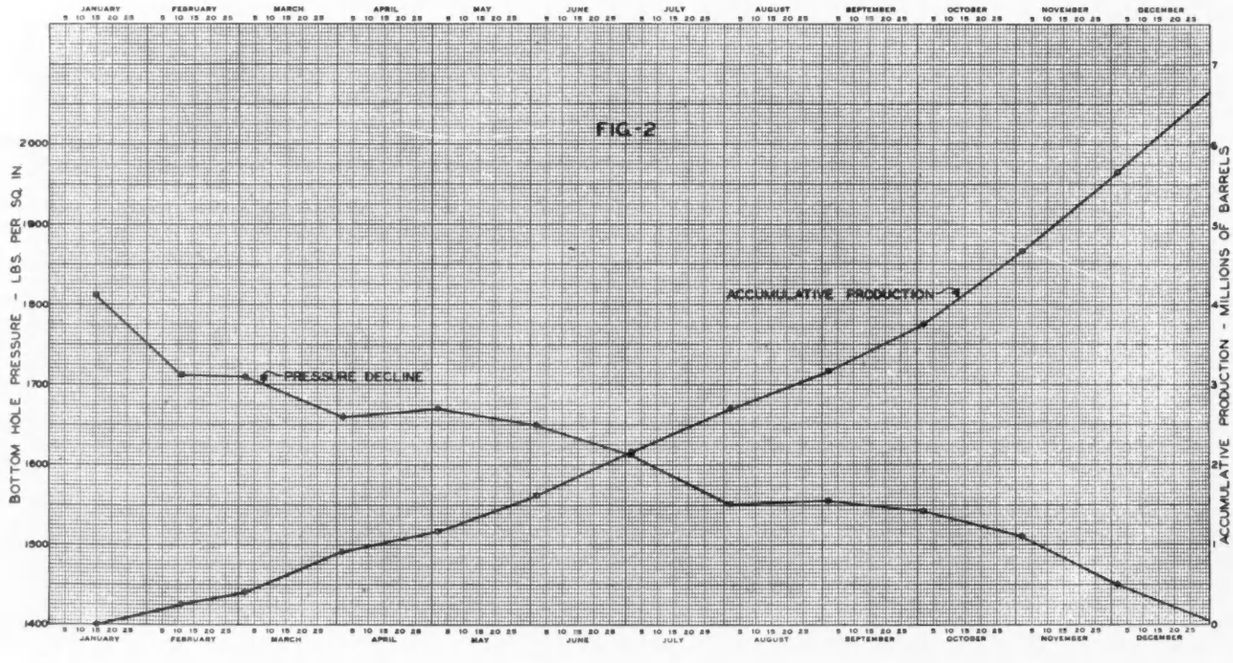
It is the aim of the Oklahoma Corporation Commission and its Oil and Gas Conservation Department to establish rules and regulations with reference to the development and production of oil in new fields, to the end that the greatest ultimate recovery may be obtained and the greatest interest in real conservation aroused. To this end its efforts will be devoted so that new pools, to be discovered in the future, will be developed under the proper spacing orders and the proper conservation rules applied in obtaining the production.

Acknowledgments

The careful cooperation of E. G. Dahlgren, chief clerk of the Oil and Gas Conservation Department of the Corporation Commission, and other members of the department, is gratefully acknowledged in the preparation of data upon which the foregoing discussion was based.

FIGURE 2

Accumulative Production and Pressure Decline Curves for Fitts Pool, Southeastern Pontotoc County, Oklahoma, for the year 1935. Average Pressure Decline per 1000 Barrels of Production was .0624 Pounds per Square Inch.



Lease Rehabilitation

CONCRETE PUMPING RIG FLOORS AND NEW ROD LINE SWINGS AIDING EFFICIENCY

By JOHN C. ALBRIGHT

THE Texas Company has been reconditioning some of its leases in the old Oilton, Oklahoma, field during the past year. One of the principal activities in this work has been replacement of old ordinary wooden floors with concrete flooring. Another operation has been discarding of old worn-out wooden rod line swings and the installation of steel units.

Both operations have been relatively inexpensive and have greatly improved conditions on the leases. The concrete floors have been placed both at wells equipped with derricks and at wells without derricks. In either case they afford a substantial surface, flush with the surface of the ground for the maintenance crew to work upon. Moreover, they provide a rigid foundation upon which the pumping jacks are set.

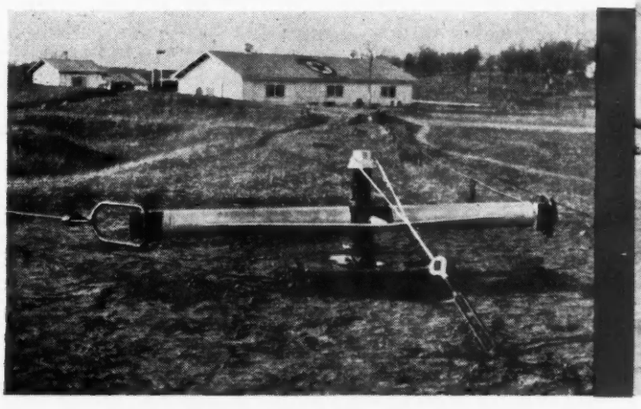
The concrete slabs are designed in an octagonal shape and surround the well head completely. Where the original casing clamps are low enough in the ground, they are covered completely, which affords adequate bracing to prevent sidesway and movement of the top of the oil string when the well is being pumped.

In preparing to pour this concrete floor, an excavation is dug in the proper shape. It is usually deep enough that eight or ten inches of crushed stone can be tamped in the bottom of the pit. After this has been accomplished, the concrete is poured to a thickness of four inches. Where derricks have been left remaining above the wells, a reinforced section is made upon which to set the tubing when it is pulled. In some instances, anchors have been set in the concrete, to which sheaves are attached for pulling machines to be tied down. These anchors extend the full depth of the excavation.

All jacks are mounted directly upon the concrete slab with a poured form base, or vertical extension to the floor built to take the jack bearing. The bolts are placed in the concrete as it is poured. Approximately a yard of concrete mixture is required to build each well floor and jack foundation in the Oilton field.

When replacing the old wooden rod line swings, employes of the company have been constructing new ones from casing and band wheel irons. Six-inch casing is used with "D" stirrup bearings welded near each end. The swing is reinforced with a piece of steel rod, welded to the pipe at each end but separated from the casing near the center by a two-inch nipple.

Band wheel shafts are sunk in the ground and a block of concrete poured around them to prevent movement. A short nipple of pipe slightly larger in diameter is then welded to the swinging part, and this assembly slipped over the band wheel shaft. Babbitt is poured into the nipple to afford an anti-friction bearing surface for the swing movement. A turnbuckle is generally attached to the top of the sunken band wheel shaft and to a buried anchor at the other end. This turnbuckle is properly located to give support to the swing against the pull of the rod lines.



The Texas Company's stripper lease rehabilitation has included the pouring of concrete floor and jack foundations in the Oilton district, as shown to the right, and the replacing of old wooden swings with the type shown below.

Portable Oil Pick-Up

UNIT IN USE IN TEXAS PANHANDLE IS EASILY BUILT AND OPERATES EFFICIENTLY

By FRANK B. TAYLOR

DIFFICULTY and expense in reclaiming oil lost through broken lines or in ponds, can be minimized through the use of a portable pick-up unit. One in use in the Texas Panhandle is operated from the power takeoff of a truck-mounted winch. A steam operated pump, with the necessary bearings and drivers, may be mounted on six-inch by six-inch skids, constituting a pumping unit that is readily portable to difficult locations.

It is not necessary to use a discarded piece of pumping equipment, as the manner of connecting does not preclude the future use of the pump in the conventional manner. It is only necessary in a horizontally connected steam end and pump to remove the steam cylinder heads for connection. An extra set of piston retaining nuts are necessary.

Construction Is Simple

Two "U's" are cut from four-inch strap iron, one half-inch thick. In the center of the bottoms of each "U", a hole is cut the size of the piston retaining nut. The nut is inserted, faced with the face of the "U" and is welded in place. Each of the "U's" are then tightened to the piston head, serving as the retainer and as the power source. Across the open ends of the "U's" are welded bearings so that their faces are horizontal to the setting of the cylinders.

Additional equipment includes two connecting rods, which connect the bearings across each "U" with a crank shaft mounted on 12-inch "I" beams parallel to, and bolted to, each of the six by six skids. It is not necessary that the "I" beams be longer than necessary to obtain solidity and consequently they do not materially add to the weight of the unit.

The driving crankshaft delivering power to the steam end through the connecting rods is mounted through bearings welded to the tops of each of the "I" beams. In the choice of a suitable crankshaft, it is necessary to obtain one that has a throw equal to the original stroke of the pump being used. Also, the distance between the bearings must approximate closely to that between the centers of the cylinder retaining nuts.

Midway between the two bearings on the mounted crankshaft, is welded a cog wheel that is powered from another cog driven by the truck winch. In the unit in service, which is operated by a seven-ton power takeoff, it was necessary to cut down the available power for smooth operation.

Consequently, the first power delivery from the winch takeoff was to an eighth to three-inch power reduction cog assembly, mounted at the rear of the skids on bearings. From here the power was delivered to the cog at the center of the crankshaft. All driving was by chain, with the exception of the delivery from the crank to the steam cylinder end, by the described connecting rods.

With a different power factor from the truck winch, different gearing values would be necessary although considerable operation has proven the ratios to be far from critical.

The suction and discharge hook-up of the pump end is conventional, with a by-pass valve controlled, back to the sump. This serves either as a bleeder for air or a back drain.

To operate, the unit is placed in position, as nearly level as conveniently possible, and the truck driven over the power end of the assembly. Connection is made to the winch takeoff, and the truck is steadied by means of jacks partially supporting the weight of the truck. By bracing in this manner, and between the bed of the truck and the first cog bearing, there is no noticeable power jerk, even at full pumping load.

In regard to smooth operation, it is necessary that the two driving bearings of the crankshaft be offsetting each other so that the suction and discharge of the pump end will counteract each other. Otherwise the tendency toward a power pulsation, particularly against a high discharge pressure, is quite noticeable.

Operation Proves Efficient

The pump has a seven-inch steam end and an eight-inch stroke. With the winch in low, smooth operation at nearly maximum capacity is obtained against a discharge pressure of 600 pounds and with only a very slight power drag against the truck motor.

At discharge pressures of about 200 pounds the winch is operated in second gear. The volumes of oil handled per hour vary with the conditions of the oil, but closely follow the rated capacity of the pump. Forty barrels per hour is considered a conservative operating factor.

Some slight difficulty is experienced due to the accumulation of leaves and other debris beneath the pump valves. This is apparent through a slight uneven drag upon the motor. To overcome this inconvenience, a wire mesh screen may be attached to the end of the suction line.

SYNOPSIS OF THE

Geology of Mexico

By ING. MANUEL SANTILLAN,
Director of the Mexican Geological Survey

MEXICO is divided into five physiographic provinces and a generalized description is given of the lithologic character of each of these provinces. A synopsis is given of the formations representing the Proterozoic, Mesozoic and Cenozoic eras and their component periods. Brief mention is made of some type fossils found and of economic importance of certain parts of the section.

* * *

The Mexican territory is composed of the five following physiographic elements:

1. Central Plateau
2. Western Sierra Madre
3. Eastern Sierra Madre
4. Yucatan Peninsula
5. Lower California Peninsula.

Dr. Santillan

The accompanying paper was presented orally from notes before the 1935 meeting of the Mexican Geological Society, San Antonio Geological Society and the American Association of Petroleum Geologists in Mexico City, October 16, 1935, and is published here for the first time.

The broad central plateau, known as the "Mesa Central," has an altitude varying from 1200 to 2600 meters above sea level. Beginning in the State of Chihuahua on the frontier with the United States, this great central plateau extends southward through Coahuila, Durango, Zacatecas and San Luis Potosi. The southern end of this plateau area becomes quite mountainous and in the states of Aguas Calientes, Guanajuato, Queretaro and Mexico, isolated ranges rising from the plains become more and more lofty, some of them reaching elevations of 600 meters above the central plateau area. The fertility of some of the valleys found between these mountain ranges is notable. Iguala, Amacuzac and Apatzingan are examples of such righ agricultural valleys. They are in most cases filled in with quaternary sediments derived largely from the disintegration of the igneous and sedimentary rocks of the nearby mountains.

"Western Sierra Madre," physiographic province, lies along the western margin of the "Mesa Central." It is the southern extension of the great American Cordillera. It occupies most of the territory in the western states of the Republic of Mexico from Sonora down to the 20th parallel where it turns to the southeast through the states of Michoacan, Mexico and Morelos. Further extensions of these same ranges are called the "Sierra Madre del Sur" in the states of Guerrera and Oaxaca. This province is characterized mainly by extremely rough mountainous country with only a relatively few narrow strips of coastal plain along the Pacific Ocean. In many cases, this physiographic province is found to terminate abruptly as the mountains come down to the sea.

Eastern Sierra Madre

Eastern Sierra Madre lies along the eastern margin of the "Mesa Central." This great mountain system extends southward from Coahuila through Nuevo Leon, Tamaulipas and Vera Cruz, meeting the south extension of the "Western Sierra Madre" in the state of Oaxaca in the region known as the Nudo del Zempoaltepetl. Although the mountains of the Eastern Sierra Madre terminate rather abruptly along their eastern margin, rather extensive coastal plains development is found between them and the Gulf of Mexico.

Yucatan Peninsula, which comprises the states of Campeche, Yucatan and the territory of Quintana Roo, has very little relief and forms an extensive plain which has a slight inclination toward the north.

Lower California comprises physiographically a mountain range which has a northwest-southeast di-

rection in the form of a backbone, dividing the watersheds of the Gulf of California on the east and the Pacific Ocean on the west. In both sides of this peninsula, when descending from the mountains towards the sea, rather extensive plains are encountered. These lowlands have many desert characteristics and are very scarcely inhabited. In many cases these semi-arid areas are terminated by cliffs along the coast.

Types of Rocks

The physiographic provinces above described contain a great variety of sedimentary metamorphic and igneous rocks. The mountain ranges of the Western Sierra Madre contain some exposures of Mesozoic sedimentary rocks and even a few areas of Paleozoic sediments. These rocks have been metamorphosed in many cases by intrusions of granites, monzonites, syenites and diorites. The larger part of this province, however, is covered by igneous rocks of the effusive type which are Tertiary and post-Tertiary in age. Andesites, rhyolites, dacites, basalts, tuffs and breccias are common over most of the territory on the Pacific slope.

Rocks of Mesa Central, on the other hand, are confined more closely to the Mesozoic and sometimes Paleozoic sediments in the mountains and to extensive quaternary gravels and isolated effusive igneous rocks in the valleys.

The mountains of the Eastern Sierra Madre are composed principally of limestones and shales of Cretaceous age, but there are several areas of Paleozoic sediments exposed in the more deeply eroded areas. In some cases these sediments contain intrusive masses, but flows of effusive rocks within these mountains are relatively scarce. There are, however, numerous volcanic plugs and lava flows along the south end of the Gulf Coastal Plain along the east front of this Eastern Sierra Madre. Tertiary sedimentation ranging from the Eocene up to the Recent has been well developed along the Gulf Coastal Plain, especially at its northern end. Here, upper Cretaceous sediments are also found along the east flank of the Eastern Sierra Madre.

The Yucatan Peninsula is characterized by sedimentary rocks of Tertiary to Recent age. While no igneous rocks of any kind are known in the Yucatan Peninsula, the Lower California Peninsula is almost entirely covered with intrusive and effusive rocks of Tertiary and post-Tertiary age that have been brought up through Cretaceous and Tertiary sedimentary rocks.

Following is a brief synopsis of such of the geologic eras and their component periods as are represented by lithologic units in Mexico.

Proterozoic Era

The oldest rocks known in Mexico are some of those found in the Western Sierra Madre that belong to the Proterozoic era. Localities in which erosion has uncovered beds of this era are found in the states of Sonora, Sinaloa, Durango, Chihuahua, Jalisco, Colima, Michoacan, Guerrero, Oaxaca and Chiapas. In the interior of the country, formations of the same age have been found in Puebla, Hidalgo, Mexico, Morelos, Guanajuato and Zacatecas. The rocks found in these states belonging to this era are all igneous or metamorphic. The igneous rocks include crystalline schists, granites, pegmatites and diorites and among the metamorphia rocks are found crystalline schists, micaceous slates, chloritic slates, cerisitic slates and biotitic porphyroidic gneisses which are easily exfoliated and sometimes become muscovitic gneisses. These rocks are intruded by the above mentioned igneous rocks. Due to lateral compression these rocks have been folded and faulted, forming many series of synclines and anticlines with axes striking in different directions.

Paleozoic Era

Rocks of Paleozoic era are of limited extent and have been found only in small areas and represent different periods of this era. Paleozoic rocks are both sedimentary and igneous, with the sedimentary rocks predominating.

Cambrian. — In different parts of Sonora and Sinaloa there have been found very coarse grained crystalline limestones with abundant chert concretions which are overlain by quartzitic sandstones and schists. These rocks do not contain fossils, so that their exact age is indeterminate, but they have been assigned to the Cambrian because of their lithologic similarity to rocks of this age found in other countries.

Silurian.—It is only in very small areas of Mexico that rocks of Silurian age have been identified. The outcrops of such rocks have been referred to this period because of their megascopic fauna which include heliolites and encrinites. These fossils are very scarce in the limestones and quartzites in which they occur.

Devonian.—The existence of Devonian is problematic in Mexico. Some of the slates, quartzites and limestones found in the states of Sinaloa and Chiapas, while they do not contain Devonian fossils, have certain lithologic characteristics which are very similar to those of Devonian rocks in other places.

Mississippian and Pennsylvanian. — Although only a few small areas have been found having rocks representative of these periods in the Eastern Sierra Madre, west of Victoria, Tamaulipas, they have a very good fauna that definitely fixes their age. Brachiopods, crinoids, corals, and other lower carboniferous fossils are also found in the limstones, dolomites, sandstones and slates of this age in Chiapa and southward into Guatemala.

Permian.—In the Sierra del Sobaco on the Hacienda de Las Delicias in the state of Coahuila, some small areas of Permian outcrops have been discovered. This section of over 5000 feet of beds is composed of a lower sandy series of volcanic origin and an upper series of fossiliferous black limestones and shales. Many typical Permian forms of fusilina, productus, spirifer, coral and other fossils have been collected from these beds.

Mesozoic Era

While Mesozoic sediments were probably deposited over almost all of the Mexican territory, they are not now nearly as much in evidence on the western slope as they are on the central plateau and the east slopes. Only in isolated areas are these beds left uncovered by the great volcanic activity that affected the whole Pacific coastal areas in Tertiary and post-Tertiary time.

While there are represented in Mexico all of the three subdivisions of the Mesozoic era, the Triassic and Jurassic beds are found only in relatively small areas. The Cretaceous, on the other hand, is one of the most widespread series of deposition that we have exposed in the Republic. It supplies the rock

Map of Mexico

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formations of which two of the three major physiographic provinces are formed. Aside from its importance from an orogenical point of view, it is of great importance economically. Most of the petroliferous beds and many of the metal mineral producing horizons are found in sedimentation of this age.

Triassic. — In various parts of the western Sierra Madre and in isolated outcrops in some of the central states some Triassic sedimentary rocks have been exposed by erosion. Generally these sediments are composed of black, grey, yellowish and red shales with conglomerate and some sandstones. The shales have been greatly affected by the tectonic forces which have acted upon them, producing very complicated faults, fractures, etc. Triassic sediments are found in the Sonora Mountains at La Barranca, San Jose de Pimas, San Marcial, Moradillas, El Lapiz and Los Bronces and consist of shales, grey and reddish sandstones, red conglomerates and schists of various colors from black to grey. Their age could be referred to the Neotriassic as their principal fossils are annodontophora sonorensis and annodontophora mexicana. The shales show very remarkable metamorphism, especially those of high silica content which have been transformed into siliceous slates and quartzites. At Los Bronces the Neotriassic contains a well preserved fossil flora. On the boundary of the states of Oaxaca and Puebla there are some Triassic formations identical to those of Sonora, containing the same fossil flora. Neotriassic sediments are also found at the following places: La Trinidad, Ahuacatlan, Teocamatlan, Olomatlan, Yetla, Teozatlan, Santa Maria, San Andres Yucunuti and Mixtepec. In the central part of Zacatecas and the southern part of Coahuila a series of black schists, greenish sandstones and grey slates interbedded with quartzites of marine origin and alternating with diabase and tuffs is found. These beds are thought to be of upper Triassic age due to the very characteristic Carnian fossils which are found in the La Pimienta creek near the City of Zacatecas.

Jurassic. — The three divisions corresponding to this age, Eo, Meso and Neo Jurassic are all represented in Mexico although none of them exhibits a complete section. The areas where the rocks of this period are found are widely scattered and form parts of the mountainous masses in the western, southern and central parts of the Republic. The Eojurassic is found in some isolated outcrops in the states of Hidalgo, Oaxaca, Puebla, Sonora and Veracruz. The formations of the Lower Jurassic are shales containing an abundant Liasic flora, composed mainly of remains of Cicadeas. In the vicinity of the village of Huauchinango, Puebla, the Eojurassic shales are carbonaceous and their colors are black, grey, reddish grey or yellowish. In the ex-districts of Magdalena and Altar, state of Sonora, the Jurassic formations are of shale interbedded with thin sandstone layers. At Las Animas there are some limestones identified through their fauna, of bryozoa and gastropods, as being of the lower Jurassic age. There are also some rocks of this age in the Sierra Caracahui and at El Lapiz. At Huayacocotla, Veracruz, the Eojurassic shales are very altered, faulted and folded due to very intense tectonic movements. The Jurassic formations at the Vinazco River, between the creeks "El Zopilote" and "El Durazno" are remarkable for their well preserved fossil plants.

The middle Jurassic has not been identified except in the vicinity of Cualac, Guerrero, and in a very small area of Oaxaca. It consists of limestones and dark colored marls which contain brachiopods and bivalves. At Oaxaca, near San Juan Diquiyu, El Carrizo and San Andres and in the vicinity of Tlaxiaco are found some shales which contain iron nodules and some carbonaceous layers that are probably of middle Jurassic age.

The Neojurassic is of wider distribution and of greater interest. It is found in the states of Coahuila, Nuevo Leon, San Luis Potosi, Puebla and Veracruz, in the Eastern Sierra Madre, in Chihuahua, Sonora, and Oaxaca on the Pacific slope, and in Zacatecas in the central part of the Republic. In the central part of Mexico a complete section of the upper Jurassic beds may be observed in which it is possible to distinguish at least twelve divisions showing distinctly different fossil fauna. In the Sierra de Catorce, San Luis Potosi, the beds of this age are sandstones and marly slates. In the Sierras de Santa Rosa and San Jose, of the mineral district of Mazapil and Concepcion del Oro, northern Zacatecas, the Neojurassic section is composed of compact grey limestones containing an abundance of nerineas interbedded with grey marls and coral beds containing remains of poorly preserved gastropods and bivalves. In the same state, in the canyons of San Matias, Puerto Blanco, Chorreadero and El Aire, the Neojurassic stratified beds have a thickness varying from 15 to 30 meters. In the state of Durango at San Pedro del Gallo, sandstones, white quartzites and marly slates of upper Jurassic age are observed. The upper Jurassic is also found at Santo Domingo, Cuchillo Parado, Placer de Guadalupe and Lluvia de Oro, Chihuahua; Canyon del Chueco, in Mier y Noriega, near Aramberri, Nuevo Leon; Tlaxiaco, Oaxaca; San Jose Chapultepec, Tutotepec and Ometepec, Puebla.

Cretaceous. — With very few exceptions in almost all of the states of the republic the Cretaceous is represented by one or more of its three subdivisions: Eo, Meso and Neo Cretaceous. Cretaceous rocks, mostly of marine origin are found forming almost all of the isolated mountain ranges on the broad central plateau. Rocks of this same age make up almost all of the eastern Sierra Madre while in the south of Mexico nearly half of the territory is covered with outcrops of Cretaceous beds.

Eocretaceous. — The formations corresponding to this age are generally found interstratified with intrusive rocks. Sometimes these are found lying upon the Neojurassic beds and in isolated areas they were deposited upon a basement of Paleozoic rocks. The Eocretaceous section is composed of well stratified grey to yellowish grey limestones, yellowish to grey marls, grey black and reddish shales and a few marly and limey sandstones. An abundant fauna, including ammonites, monopleura and belemites, is found in these beds wherever they are exposed. Extensive outcrops of these beds are found at San Pedro del Gallo, in Durango, Mazapil and Santa Rosa in Zacatecas, Tlaxiaco in Oaxaca, Sierra de Catorce in San Luis Potosi, Zapotitlan in Puebla, Cualac in Guerrero, La Parota in Michiocan, Necoxtla in Veracruz and in many parts of the states of Calima, Jalisco and Sonora.

Mesocretaceous. — The great limestone section of middle Cretaceous age has one of the most widespread distributions in Mexico. While only isolated areas of it remain exposed in the states along the Pacific coast, the major portion of the central pla-

teau and Eastern Sierra Madre is covered by the outcrops of these beds. Almost all of the mountains that rise above the great central plateau are of Cretaceous limestone and in the eastern Sierra Madre these beds have been folded into lofty sierras often reaching altitudes 3500 meters above sea level.

Dark grey to black limestones, marly limestones and a few interbedded limey shales make up most of this great section of marine sediments. It is highly fossiliferous throughout; rudistids, ostreas, nerineas and caprinas being found in great abundance.

As above mentioned, these beds wherever they are seen have usually been subjected to profound folding and sometimes faulting. The distortion and fracturing attendant to this severe folding left ample opportunity for solution of the limestones by circulating ground waters. These processes have been largely responsible for the economic importance of the Mesocretaceous beds in Mexico. Numerous areas have been enriched by silver, lead, zinc and copper deposits formed in connection with solution and replacement of these limestones. On the other hand, induced porosity created in this way has been thought to be of primary importance in the accumulation of the rich oil fields of the Tampico and Tuxpan areas.

Neo Cretaceous. —The most widespread occurrence of upper Cretaceous rocks in Mexico is found in the northern states of Chihuahua, Coahuila, Nuevo Leon, Zacatecas and Lower California. Great thicknesses of interbedded dark shales with interbedded sandstones and calcareous and marly shales characterize this series of sediments on the eastern side of the central plateau. Fossil remains found in these beds include ammonites, fishes, nerinea and ostrea. These beds are chiefly valuable economically for the large coal deposits which they contain in the Sabinas basin in northern Coahuila.

Cenozoic Era

Cenozoic rocks extend over a large area in Mexico and are of great interest, not only geologically, but for their mineral and petroliferous richness. They are widely distributed in all the states of the republic and contain both igneous and sedimentary rocks of great variety. The igneous rocks may be subdivided into intrusive, extrusive and pyroclastics. The intrusives, found mainly in the Mexican Sierras Madres, include granites, granodiorites, monzonites, syenites and diabases. Among the extrusive igneous rocks found in the same regions are found andesites, rhyolites, basalts, retinites, taquilites, obsidians. The pyroclastics are mainly tuffs, ashes and andesitic, rhyolitic and basaltic breccia. The sedimentary formations include marine, limestones and marls, lagoonal clay and marly limestones, as well as sandstones, conglomerates and volcanic products accumulated under water.

Eocene. — Although there are some beds of this age found in Chiapas and in Lower California, the Eocene section is best developed along the coast of the Gulf of Mexico and in the states of Nuevo Leon, Tamaulipas and Veracruz. Great thicknesses of interbedded marine shales and massive sandstones are characteristic of these beds in northeastern Mexico. A rich variety of both microscopic and megascopic fossils is found in the formations of the Eocene. Ostrea, natica, turritella, certhium, vernericardia, volutocorbis, pteropsis and many others are found in great abundance in these beds.

Eocene of northeastern Mexico appears to have some very promising economic possibilities. Already commercial gas fields have been developed at La Presa and Rancherias in northern Tamaulipas, and it is believed that the lower Jackson or Yegua beds have excellent possibilities for oil production in this area.

Oligocene. — The upper and lower parts of these beds are known as the Alazan and Meson formations respectively in the oil fields of northern Veracruz and Tamaulipas. These same beds have been recognized on paleontologic evidence in the subsoil from cuttings of wells drilled on the Gulf Coastal Plain. They are largely composed of sandy marls with occasional thin layers of interbedded sandstone.

Miocene. — Sediments of Miocene age have been identified in Lower California, Chiapas, Hidalgo, along the Gulf Coast and in the Isthmus of Tehuantepec. They are composed of argillaceous sands and greyish to whitish limestones. Fossils found in these beds are not very well preserved and have not permitted their identification.

Pliocene.—The rocks of this division are very extensive in the states of Chiapas, Oaxaca and certain places of Lower California. The Yucatan Pliocene occupies more than half of the northern part of the Peninsula and is composed of fossiliferous limestones. In the state of Veracruz at Acayucan, Papantla, Tuxpan and Santa Rosa the Pliocene is represented by grey sand and fossiliferous blue marls containing sigaretus and turritellas.

After the close of the Cretaceous period, the great folding which took place so weakened the earth's crust along the axes of the anticlines and synclines so developed as to render them lines of lesser resistance. Later, during the Miocene and Pliocene periods, these weakened areas were invaded by the great fluid masses and used as channels for the conduction of these great lava flows to the surface. In these mountains of the central and southern ranges andesites and rhyolites, with their corresponding tuffs, are found. The manifestations of the Tertiary vulcanism are shown not only by the eruption of lavas through great crevasses, however, but also through volcanic cones of great size such as the Pico de Orizaba, Cofre de Perote, Popocatepetl, Ixtaccihuatl, Ajusco, Nevados de Colima and Toluca. The summits of these peaks rise to such heights as to leave them covered with perpetual snow.

Quaternary. — The formations corresponding to this period are widely distributed in the valleys and along the coasts. Its rocks may be divided into two groups; sedimentary and igneous. The sedimentary rocks are mostly alluvium of clays, marls and sands, while the igneous rocks include tuffs, ash and other volcanic rocks. In the Quaternary sediments some mamiferous fossils and remains have been discovered, including ursus, elephas, equus and cervus. Quaternary basals, tuffs, breccia and basaltic glasses cover extensive areas in many regions of the country. Some of these volcanic eruptions occured within our historical period. Lavas exuding from the volcanoes, flowing down to the lower areas, encountered inhabited places destroying and burying them. Such is the history of the small volcano named Xictli, located in the Ajusco Sierra near Mexico City. Human remains can be seen buried beneath the lava that came from this volcano.

Four-Well Pump Hook-Up

MINIMUM AMOUNT OF SPACE REQUIRED BY UNUSUAL PUMPING ARRANGEMENT

By EARL S. POST, Staff Writer

A FOUR-WELL pumping arrangement for a shallow lease has been put into use by Tom Owen on his 11-acre tract in the Von Ormy field of Bexar County, Texas. The set-up occupies a minimum amount of space, is inexpensively operated and is unusually safe for workers on the lease.

The land is owned in fee by Owen. When the field was extended to include the tract, he decided to develop it himself rather than to lease the property. The result was he worked out a plan to utilize as little of the property as possible for the wells, leaving the remainder for gardening and trees.

The four wells were placed 150 feet each way out of the corners of the lease in the usual manner. The hook-up to the central power, however, varied from the usual method. The power was constructed midway between wells Nos. 2 and 3, 150 feet from the back line of the property. The pull for these wells was simple, being at opposite sides of the power. The power for wells Nos. 1 and 4, at the other corners of the lease was provided by running the shackle lines to swings set at wells Nos. 2 and 3, as is shown in the accompanying illustration.

Due to the excellent balance of these wells, a six-horse power engine, run by gas from the wells on the lease, is sufficient to adequately pull all four 725-foot wells at one time. At no time is there a strain on the engine, rather it runs at an easy pace.

The power house is a small lean-to sheet metal building, oblong in shape. The engine is set on a concrete block at one end of the building. At the other end is a rocker arm type of power, mounted on concrete base. A heavy leather belt is connected between the engine and the flywheel on the power. This belt is kept tight at all times by a device having an A-shaped frame work, the flat side being fastened to the floor of the power house and the angle raised toward the belt. A pulley, mounted on a pair of bearings, is fastened to this frame so that it may roll as the belting passes over it. A pair of springs are fastened between the foundation and the raised portion of the frame, so as to keep it resting tightly against the belt. The result is that the belt is kept tight at all times, but any shocks due to rough spots on the belt will act against the springs rather than break the belt. The floor of the power house is covered with small gravel, thus any oil or water spilled on the floor will be taken into the ground, rather than creating a slippery spot where injuries may occur. A cabinet is built for all small tools. Likewise a work bench is arranged in the building for small work, engine repairs, etc.

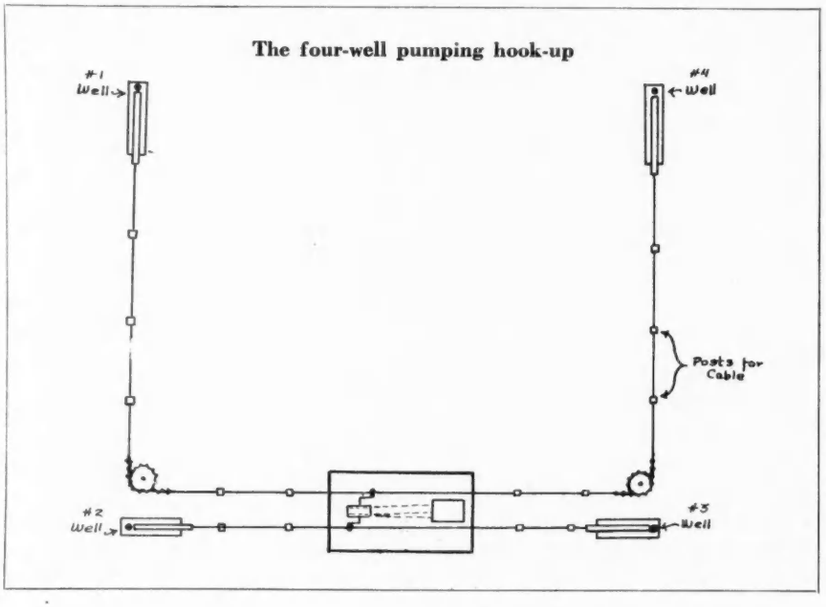
Shackle rods from the power to the wells are raised about two feet from the ground by being run through holes bored in cedar posts. The holes are greased to reduce friction.

The jacks are balanced as nearly as possible to reduce strain on the power unit. Likewise, the stroke is reduced to the slowest speed possible, about 11 strokes per minute, further reducing wear and tear on equipment. Slow pumping and well balanced equipment have enabled this operator to run his wells considerably longer than many of the operators in the field without pulling the rods to install new cups.

The shackle rod swings are constructed by setting a piece of pipe in a block of concrete. A rotary gear wheel is then mounted on the pipe at the desired height. Rotary chain is inserted in the line at the point it touches the gear. The swing is kept securely in place by the use of several tie rods, which are fastened to pull against the normal strain.

All wells are connected to one tank hook-up, which includes several small tanks mounted on an elevated lumber rack. A bleed-off pipe at the bottom, connected to a valve allows the water to be drained. Also, it provides better facilities for trucks to load the crude oil.

The four-well pumping hook-up



More Improvement

GASOLINE MARKETS STRONGER AND KEROSENE STILL RISING

THE markets continue on an upward trend after having shown gradual improvement for several weeks. The gasoline market still is depressed in the Pacific Coast region, but better prices seem likely within a few weeks. For the rest of the country, tank car and retail prices are generally favorable, and further gains are indicated. Gasoline tank car prices advanced one eighth cent per gallon last week in East Texas, North Texas, and West Texas, and were firm at the higher levels. Kerosene tank car prices also rose another one-eighth of a cent in some sections of the Mid-Continent, and seemed destined to go still higher.

The better gasoline market in Texas was the result of increased shipments from the refineries, coupled with reduced plant operations; those circumstances bringing a virtual elimination of surplus material and distress offerings. The larger shipments reflected the more favorable motoring weather the past few weeks. In the northern portions of the Mid-Continent, the gasoline prices remained unchanged during the past week, but the demand was better and prices were firmer.

Kerosene Up Further

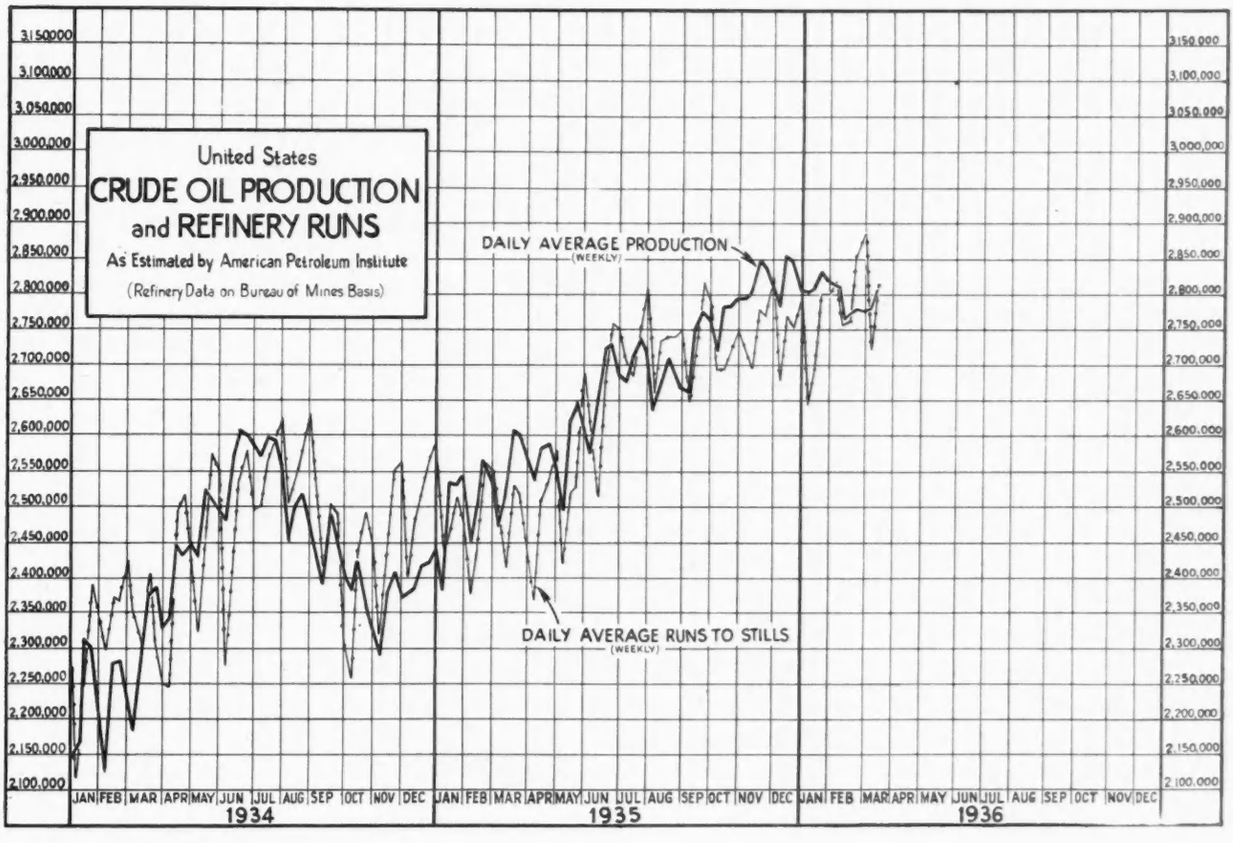
The kerosene market continued notably strong again, after having advanced steadily upward for several weeks. The prices of kerosene and tractor fuel have been rising in anticipation of large consumption on the farms during the spring. The buying has been to a large extent of the inter-refinery type, as many refiners concentrated heavily on making light fuel oils in the opening months of the year, due to the cold weather, and consequently have been obliged to build up their kerosene stocks to normal proportions by outside purchases. However, purchases by jobbers are expected to constitute a more important factor in the kerosene market in the future.

The supplies of kerosene in the Mid-Continent have been scarce recently, and early last week they were further circumscribed by the sale of 25,000 barrels in East Texas. In consequence of that sale, East Texas has ceased to be an important factor in the markets of the Mid-Continent and North, current output finding ready market locally for the most part.

Late in the week the 41-43 water white kerosene was priced at Mid-Continent refineries at 4⅛ to 4¼ cents a gallon. For the Chicago area, these prices represented an improvement of one-eighth of a cent a gallon over a week previously; while for Oklahoma they represented a narrowing of the price range, as some material had been offered previously at as low a price as 4 cents. The 42-44 water white grade was unchanged last week at Oklahoma refineries at 4¼ to 4½ cents, but was up an eighth cent in the Chicago area at 4¼ to 4⅜ cents.

California Shows Improvement

The prospects grew brighter last week for early general improvement of gasoline prices throughout the Pacific Coast country, and there was hope that the advances might materialize within a week or 10 days. In consequence of the recent increases of crude oil prices, some of the important independent refiners of the Los Angeles area last



week increased their tank wagon gasoline prices about one cent per gallon, and several of the larger independents have forced increases of 1 to 1½ cents in the retail prices of their gasoline. This action presages further increases within the coming week or so on the part of the independents and probably foreshadows a general increase.

Texas Gasoline Prices Up

The early part of last week brought the one-eighth of a cent per gallon advance of gasoline tank car prices in the Texas districts of the Mid-Continent. The advance was led by refiners in East Texas, when quotations on the fully tendered low octane material were raised from 4⅞ to 5 cents a gallon f. o. b. plants. In contrast with the the situation that prevailed for several weeks previously, in which offerings were made at distress prices, there was noteworthy absence of distress offerings last week. In fact, brokers were finding difficulty in obtaining shipment at the new, improved prices.

Although the new price of 5 cents could be obtained for the fully tendered East Texas gasoline eligible for interstate and coastwise shipment, lower prices prevailed as usual on material not qualified with the federal tenders. Material moving within the state by tank car has been netting the refiners from 4 to 4½ cents, while shipments by truck have involved prices averaging about 4 cents. But some illegal material is reported to be moving out of the district in trucks at less than 4 cents. The current output of hot oil is comparatively small, however, being estimated at about 15,000 barrels daily.

Mid-Continent Quotations

In conformity with the advance in East Texas, gasoline tank car prices were increased last week also in North Texas and West Texas. Prices f. o. b. refineries in those districts were advanced to 5⅛ cents a gallon on the third grade U. S. Motor gasoline, 62 octane and below, and to 6⅛ cents on the regular grade, 63 to 70 octane.

At Oklahoma refineries the gasoline prices continued, as in the previous week, at 5 to 5⅛ cents for the low octane material, and at 6 to 6⅛ cents for the regular grade.

East Texas Tank Car Shipments

Week Ending March 15, 1936

PRODUCTS	No. Cars	Estimated Gallons
Gasoline	524½	4,277,862
Fuel Oil	228	2,208,403
Casinghead Gasoline	204	1,692,153
Distillate	36	289,403
Kerosene	28½	226,717
Gas Oil	21	167,944
Residuum	1	8,092
Total	1,043	8,870,574
Total Previous Week	996	8,326,392
Coastwise	427	.....
Intrastate	328	.....
Interstate	288	.....
Total	1,043	.....

WEST COAST MARKET

Plans underway to dispose of surplus gasoline

THE markets for gasoline and other petroleum products continue to mark time in California, but it is felt it is only a question of a week or two, before it will be possible and feasible to increase gasoline prices from two to three cents a gallon for the entire West Coast area. Due to the presence of several million gallons of gasoline on hand and in the tanks of the smaller companies, which is surplus stock, it is not felt it would be good policy to raise gasoline prices now, since some of the holders of this surplus might immediately dump it on the market at one to two cents under the new market.

Plans are being worked out to dispose of this surplus in a manner that will not hurt the market and at the same time give the holders a fair price, so they can start all over again. It is not legal for the major companies to purchase this large surplus, and the order is too large for any one company to take it over at a fair price, to the owners. The new organization of independent refiners may be able to work out a plan to dispose of this surplus without working a hardship on any one.

The crude oil production situation is gradually working out to a point where there will be little if any addition to stocks. It is possible stocks will be increased slightly in March, but it is further possible there will be no increase in April. As of March 17, total crude oil production in California was 564,555 barrels, an excess of 26,205 barrels per day over the allowable of 538,350 barrels. Of this total excess, 18,152 barrels is in the Los Angeles Basin. This compares with 574,113 barrels on February 17, and 685,819 barrels on January 17. This is a decline of slightly more than 121,000 barrels a day in 60 days time. Those behind the voluntary movement to curtail feel this reduction is well worthwhile.

POTENTIAL REDUCTION

Austin, Texas.—In order to avoid the large runs of oil resulting from potential retests of Panhandle wells the Texas Railroad Commission has worked out a system whereby a reduction in the potential will be made every 90 days.

Because of the length of the potential tests in the Panhandle, large quantities of oil have been produced which loaded the market and caused the operators to make unreasonably large expenditures in equipping their wells with flow lines and providing additional storage on the lease.

The new plan which is now in effect will be optional with the operator.

Summary of Wells Completed in the United States
Week Ending March 21, 1936

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total Completions 1936	Total Completions this date 1935
Alabama	....	....	....	....	.....	....	2
Arkansas	4	1	....	3	810	22	44
California	30	26	1	3	11,150	193	164
Colorado	....	....	....	....	.....	1	3
Illinois	....	....	....	....	.....	4	6
Indiana	13	....	7	6	.....	63	36
Kansas	30	24	....	6	15,883	289	284
Kentucky	3	3	....	....	785	24	20
Louisiana	22	17	....	5	42,369	202	159
Michigan	5	3	1	1	850	142	70
Mississippi	....	....	....	....	.....	1	6
Montana	1	....	....	1	.....	19	12
New Mexico	8	8	....	....	7,379	94	58
New York	....	....	....	....	.....	....	....
Ohio	42	8	16	18	70	463	327
Oklahoma	56	36	5	15	42,028	558	484
Pennsylvania	....	....	....	....	.....	....	30
Texas	245	178	7	60	278,427	2,408	2,438
Utah	....	....	....	....	.....	....	....
West Virginia	3	1	2	....	30	130	128
Wyoming	2	1	....	1	5	8	7
Total this week	464	306	39	119	399,786	4,621	4,279
Total last week	399	274	39	86	482,895	....	....
Total this year	4,621	3,042	495	1,082	4,676,210	....	....

Comparison of Permits Granted for New Wells

STATE	Week Ending Mar. 21	Total this Mo.	Total this Year	Total this Date Last Year	1935 Year Total
Arkansas	1	3	17	33	70
California	19	51	182	151	925
Louisiana	38	90	252	139	846
Kansas	31	104	342	280	1,204
Michigan	10	24	119	78	749
Oklahoma	75	174	550	406	2,311
Texas	373	817	2,675	2,588	10,800
Total	547	1,263	4,110	3,675	16,964

CRUDE OUTPUT UP

Excess less serious than in early part of year

THE oil industry continues to benefit by a reasonable curtailment of crude production, although output for the nation last week was up 37,625 barrels above the daily average of the previous week. For the new period, the week ended March 21, the production averaged 2,837,950 barrels per day.

Although that figure was approximately 100,000 barrels more than the daily average recommended for March by the Bureau of Mines, the excess was at least much smaller than the overproduction up to a few weeks ago.

Louisiana and California again last week accounted for a high proportion of the total national excess production, although Oklahoma and Kansas showed some excesses, while Texas was about within its indicated demand.

Louisiana's production last week averaged 200,700 barrels per day, or more than in the previous week, and was nearly 50,000 barrels higher than the Bureau of Mines recommendation. The state's proration schedule permits approximately that much more output than the bureau advised.

California output came down the small amount of 500 barrels further last week, averaging 565,500 barrels daily. That was only 26,700 barrels a day more than the economic objective of 538,800 barrels daily for March.

Oklahoma showed an increase of about 11,000 barrels in averaging 525,900 barrels daily. The Bureau of Mines calculation of demand was 506,300 barrels. However, Oklahoma usually compensates in the latter part of each month for any excesses earlier in the month.

Kansas production last week averaged 150,975 barrels daily, or over 9000 barrels more than in the previous week. The Kansas allocation for March is 142,000 barrels daily.

Texas last week averaged 1,107,300 barrels daily, or about 2000 barrels a day more than in the previous week. The state's allocation on the Bureau of Mines schedule is 1,104,000 barrels daily for March.

GAS NOMINATIONS

1,676,048,000 cubic feet is April demand

Austin, Texas.—Texas gas producers filed nominations at the state-wide proration hearing last week for the purchase of 1,097,127,000 cubic feet of sweet gas during April. They also nominated to purchase 578,921,000 cubic feet of sour gas.

In the East Panhandle the sweet gas nominations totaled 133,874,000 cubic feet; in the West Panhandle the total was 574,279,000 cubic feet. This was a total demand of 728,153,000 cubic feet for sweet gas to be produced from the Panhandle area, or 4.6 percent of the total potential of the area.

Nominations to purchase 564,650,000

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	BARRELS DAILY FOR WEEK ENDING March 21	March 14
TEXAS—		
Texas Panhandle	60,200	65,200
North Texas	56,700	56,800
West Central Texas	24,900	24,800
West Texas	173,800	175,200
East Central Texas	50,400	49,100
*East Texas Field	440,900	438,300
†South Texas Field	73,500	71,600
†Texas Gulf Coast	226,900	224,500
*Total Texas	1,107,300	1,105,500
OKLAHOMA—		
Oklahoma City	127,025	120,775
Seminole Area	134,100	129,900
Tatums	3,525	3,575
Lucien	11,700	11,750
Fitts	53,225	51,400
Edmond	13,375	14,950
Others	182,950	182,425
Total Oklahoma	525,900	514,775
KANSAS—		
Ritz-Canton	7,825	7,100
Voshell	3,925	3,900
Nikkel-Hollow	4,475	4,100
Sedgwick	6,050	6,000
Oxford	7,300	7,100
Burrton-Haury	14,850	14,700
Lorraine	8,700	7,400
Others	97,850	90,850
Total Kansas	150,975	141,150
LOUISIANA—		
North Louisiana	64,900	56,850
Louisiana Gulf Coast	135,800	134,200
Total Louisiana	200,700	191,050
ARKANSAS	29,975	29,350
CALIFORNIA—		
Long Beach	69,500	68,500
Santa Fe Springs	43,000	43,500
Huntington Beach	36,500	36,500
Dominguez	25,500	27,000
Inglewood	11,800	11,000
Ventura Avenue	32,500	33,000
Seal Beach	7,800	7,500
Midway-Sunset	55,000	55,200
Elwood	11,900	12,000
Kettleman Hills	77,500	77,000
Mountain View	26,300	27,500
Playa del Rey	12,800	12,500
Others	155,400	154,000
Total California	565,500	566,000
MOUNTAIN STATES—		
Wyoming	36,100	35,200
Montana	13,400	12,500
Colorado	4,100	4,100
Total Rocky Mountain States	53,600	51,800
NEW MEXICO	61,800	58,200
EASTERN STATES	106,600	105,800
MICHIGAN	35,600	36,700
*Total United States	2,837,950	2,800,325
*Surreptitiously produced oil in East Texas, not included in above figures, estimated at	12,000	10,000
Grand Total, including surreptitious production	2,849,950	2,810,325

† Coastal District of South Texas is included with Texas Gulf Coast.

Crude Runs to Stills; Stocks of Finished & Unfinished Gasoline and Gas and Fuel Oil, and Cracked Gasoline Production, Week Ended March 14, 1936

(Figures in thousands of barrels of 42 gallons each, as reported by American Petroleum Institute)

DISTRICT	Daily Refining Capacity			Crude Runs to Stills		Stocks of Finished and Unfinished Gasoline				Stocks of Gas and Fuel Oil			Daily Charging Capacity of Cracking Units			Cracked Gasoline Production
		Reporting				Finished								Reporting		
	Potential Rate	Total	%	Daily Average	% Operated	At Refineries	Terms. Trans. Pipe Lines	Unfinished in Naphtha Distillates	Total Finished and Unfinished	Gas Oil & Distillate	Residual Fuel Oil	Total	Potential Rate	Total	%	Daily Average
East Coast	612	612	100.0	494	80.7	7,206	9,801	1,165	18,172	2,480	3,840	6,320	534	534	100.0	106
Appalachian	154	146	94.8	110	75.3	1,719	898	288	2,905	450	225	675	79	78	98.7	24
Ind., Ill., Ky	442	424	95.9	382	90.1	7,766	2,850	868	11,484	1,165	1,567	2,732	349	348	99.7	107
Okla., Kans., Mo	453	384	84.8	246	64.1	4,961	2,250	750	7,961	634	1,806	2,440	256	228	89.1	55
Inland Texas	330	160	48.5	91	56.9	1,571	123	233	1,927	165	1,251	1,416	148	105	70.9	24
Texas Gulf	680	658	96.8	571	86.8	7,263	212	1,965	9,440	2,460	3,964	6,424	399	393	98.5	128
Louisiana Gulf	169	163	96.4	130	79.8	1,280	376	193	1,849	817	1,656	2,473	77	74	96.1	23
North La.,—Ark	80	72	90.0	37	51.4	179	84	137	400	19	391	410	46	44	95.7	10
Rocky Mountain	97	60	61.9	43	71.7	1,554	.....	93	1,647	194	510	704	46	39	84.8	13
California	852	789	92.6	515	65.3	10,084	2,175	1,113	13,372	.....	.....	70,635	280	280	100.0	65
Reported	.....	3,468	89.6	2,619	75.5	43,583	18,769	6,805	69,157	.....	.....	94,229	.....	2,123	95.9	555
Estimated Unreported	.....	401	.....	196	.....	2,686	259	620	3,565	.....	.....	1,633	.....	91	.....	35
*Estimated Total U.S. March 14, 1936	3,869	3,869	.....	2,815	.....	46,269	19,028	7,425	72,722	.....	.....	95,862	2,214	2,214	.....	590
*Estimated Total U.S. March 7, 1936	3,869	3,869	.....	2,725	.....	45,133	19,921	7,227	72,281	.....	.....	95,888	2,214	2,214	.....	600
U.S.B. of M.,Mar.,1935	.....	.....	.....	2,472	.....	†40,220	†20,185	†5,885	†66,290	.....	.....	†99,380	.....	.....	.....	517

*Bureau of Mines basis currently estimated. †As of March 31, 1935.

cubic feet of sour gas were received, which is 6.8 percent of the total production of the sour gas wells. Outside the Panhandle, the nominations for sweet gas totaled 368,974,000 cubic feet, or 3.1 percent of the total production.

The sour gas demand, outside the Panhandle, was 14,271,000 cubic feet per day, or 3.9 percent of the potential of the sour gas wells.

EAST TEXAS DEALS

Tyler, Texas.—Two major deals are involved in recent transfers of producing properties in the East Texas field. Illinois Oil Company, headed by John L. Herschbach, Dallas, sold its Mayfield Company 197.1-acre lease, James Jordan Survey, Smith County, with 41 completed wells to Martex Oils, Inc., Fort Worth, for $512,500 cash and an additional $362,500 payable from oil production. Shell Petroleum Corporation holds one-fourth over-riding royalty on the east one-half of the property, and one-eighth over-riding interest in the remainder of the tract. C. E. Marsh, Austin, is president of Martex Oil, Inc., Sid W. Richardson, Fort Worth, one of the largest independent producers in West Texas, acquired an interest with Martex Oils, Inc. and will operate the property.

Cordova Union Oil Corporation, Fort Worth, sold its three-fourths interest in three north Rusk County leases, involving 133 acres and 23 wells, to American Liberty Oil Company and Atlantic Oil Producing Company for approximately $600,000, according to George B. McCamey, president. The latter acquired one-half interest in the C. O. Christian 35.4-acre lease, R. E. Winn Survey, with 9 wells, and American Liberty Oil Company purchased one-fourth interest in the lease. American Liberty Oil Company bought control of the C. O. Christian 62½-acre lease, D. Clark Survey, with 9 wells, and the C. O. Christian 35-1-acre lease, W. A. Elliott Survey, with 5 wells. W. E. Duffey, W. C. and C. E. Nelson will retain their one-fourth working interest in the three tracts.

RODESSA POSTING

Dallas, Texas.—Magnolia Petroleum Company made its initial posting for crude oil in the Rodessa field effective March 16, adopting the regular gravity schedule of the North Louisiana-Arkansas district. The prices begin at 86 cents for below 29 gravity, 88 cents for 29-29.9 gravity, and range up by 2-cent differential to $1.10 for 40 gravity and above.

EMPIRE STORAGE

Bartlesville, Okla.—As of March 1, 1936, the Empire Pipe Line Company held in storage 5,694,603.81 barrels of crude oil, having received 1,724,074.01 barrels or an average of 59,450.83 barrels per day during February and delivered 1,177,853.98 barrels or 40,615.65 barrels during that month.

POTENTIAL CHANGED

Five Texas fields now on revised schedules

Austin, Texas.—The Texas Railroad Commission last week issued orders revising allowables in five fields, which will be retroactive to March 1.

North Cowden was increased 1500 barrels to 5850 barrels. Big Lake was increased 980 barrels to 9000 barrels.

The allowable for wells in the Rodessa field was cut 100 barrels to 400 barrels, which resulted in those wells in Texas having the same allowable as wells in the same field in Louisiana. This was in line with a policy worked out by Texas officials at a conference with Louisiana officials, held shortly after the first of March.

The allowable for the Manvel field was raised 125 barrels per day to 7625 barrels, and there was an increase of 215 barrels in the Plymouth field, resulting in a total allowance of 7005 barrels for that area.

Ponca City.—Continental Oil Company has let contract for erection of a complete gasoline recovery plant and crude oil stabilization plant to be erected on its Tepetate holdings near Eunice, Louisiana. The plant is to process 50,000,000 cubic feet of gas daily at a pressure of 300 to 500 pounds, and is to stabilize the high gravity crude to 42 gravity for shipment to the company's refineries. The contract was let to Petroleum Engineering, Inc., affiliated wtih Arthur G. McKee & Company, and it is reported the expenditure involved is approximately $200,000.

CRUDE OIL PRICE QUOTATIONS

(Figures Represent Basic or Flat Prices—Revised to March 20, 1936)

DISTRICT	Low Grav.	Dif.	High Grav.	Date
Oklahoma-Kansas	28—$0.94	2¢	40—$1.18	1- 9-36
N. and N.-C. Texas	28— .84	2¢	40— 1.08	1- 9-36
Texas Panhandle				
Gray County	34— .86	2¢	40— .98	1- 9-36
Carson-Hutchinson	34— .81	2¢	40— .93	1- 9-36
West Texas				
Ector, Pecos, W'kler Crane, Upton, Howard and Glasscock	29— .76	2¢	36— .90	1-14-36
West Central Texas	28— .84	2¢	40— 1.08	1- 9-36
East Central Texas	28— .91	2¢	40— 1.15	1- 9-36
East Texas	*1.15			1- 9-36
Texas Gulf Coast				
Anahuac-Dickinson	30— 1.04	2¢	40— 1.24	1- 9-36
Conroe	35— 1.24	2¢	40— 1.34	1- 9-36
Tomball	*1.30			1- 9-36
Cleveland	*1.00			1-11-34
†Goose Creek, Hull Liberty, Orange, Pierce Junction, Moss Bluff, Raccoon Bend, Sour Lake, Spindletop, Sugarland, West Columbia, Humble, Rabbs Ridge	Below 17— .88	2¢	34—1.22	1- 9-36
South and S. W. Texas	Below			
Refugio (Light)	17— .88	2¢	34— 1.22	1- 9-36
Refugio (Heavy)	* .90			1- 9-36
Saxet	* .90			1- 9-36
Mirando	* .85			1- 9-36
Pettus	*1.25			1- 9-36
Salt Flat	* .97			1-14-36
Darst Creek	* .97			1-14-36
Port Lavaca	* .97			
Plymouth	* .90			12-17-35
Arkansas				
El Dorado (Light) and Rainbow	25— .78	2¢	40— 1.10	1-10-36
El Dorado East Field and Smackover	* .75			1-10-36

* All gravities—flat rate.
† Gulf Coast prices as posted by Humble Oil & Refining Company.

DISTRICT	Low Grav.	Dif.	High Grav.	Date
North Louisiana	25—$0.78	2¢	40—$1.10	1-10-36
Urania	* .97			1-10-36
South Louisiana	Below			
Lockport	19— .92	2¢	34— 1.22	1- 9-36
Iowa, Cameron Mds.	Below 19— .82	2¢	34— 1.12	1- 9-36
Rocky Mountain States				
Salt Creek	29— .94	2¢	40— 1.18	1-10-36
Elk Basin	*1.28			1- 9-36
Grass Creek (Light)	*1.28			1- 9-36
Grass Creek (Heavy)	* .58			1- 9-36
Big Muddy	*1.11			1- 9-36
Rock Creek	*1.12			1- 9-36
Sunburst	*1.25			1- 9-36
Lance Creek	* .90			1- 9-36
Osage	*1.08			
Cat Creek	*1.07			8-25-33
Cut Bank	*1.45			9-29-33
Pondera	*1.05			9-29-33
Hog Back, N. M.	*1.00			9- 8-33
Lea County, N. M.	* .75			9-29-33
Mid-West States				
Lima	*1.25			1-10-36
Illinois	*1.23			1- 9-36
Princeton	*1.23			1- 9-36
Western Kentucky	*1.23			1- 9-36
Pennsylvania				
Bradford	*2.45			1-13-36
Sw. Pa. Pipe Line	*2.17			1-13-36
Eureka Pipe Line	*2.12			1-13-36
Buckeye Pipe Line	*1.97			1-13-36
Corning Grade	*1.42			1-13-36
Michigan				
Central Michigan	*1.12			11- 7-35
Muskegon	* .70-1.00			12-31-32
Canada				
Petrolia	*2.10			9- 9-33
Oil Springs	*2.17			9- 9-33

* All gravities—flat rate.
‡ Average price, all oil sales being to small refineries.

MAJOR PRICE CHANGES

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut °46
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up °28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up °9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up '5

CRUDE PRODUCTION TAXES

Oklahoma—Five percent of gross value less royalty interest.

Texas—Two cents or 2 percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ⅜ of 1c per barrel.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

* All gravities—flat rate.
° Signal Hill 26 gravity.
' Seal Beach 26 gravity.

CALIFORNIA OIL PRICES

(All gravities above those quoted take highest prices of that field. Effective February 26, 1936)

Gravity	Signal Hill*	Seal Beach Alamitos Heights*	Huntington Beach*	Inglewood	Playa Del Rey*	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs*	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$ 80	$.76	.....	.....	$.80	$.76	$.76	$.77	$.78	.....	$.70	.....	$.70	$.70	$.70	.....
15-15.9	.80	.79	.78	.79	.80	.76	.....	.....	.80	.76	.76	.77	.78	.....	.70	.....	.70	.70	.70	.....
16-16.9	.80	.79	.78	.79	.80	.76	.....	.....	.80	.76	.76	.77	.78	.....	.70	.....	.70	.70	.70	.....
17-17.9	.80	.79	.78	.81	.80	.76	.....	.....	.80	.76	.76	.77	.78	.....	.70	.....	.70	.70	.70	.....
18-18.9	.80	.79	.78	.84	.80	.78	.....	.....	.82	.76	.76	.77	.78	.....	.70	.....	.70	.70	.70	.....
19-19.9	.82	.79	.82	.87	.84	.81	.....	.....	.85	.76	.78	.77	.78	.....	.70	$.70	.74	.74	.71	$ 70
20-20.9	.85	.79	.85	.90	.88	.84	.....	.....	.88	.78	.82	.77	.80	.....	.....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	.....	.....	.91	.80	.85	.77	.84	.78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	.....	.....	.93	.84	.89	.79	.88	.78	.....	.77	.87	.86	.78	.72
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	.....	.96	.88	.93	.82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	.....	.99	.91	.96	.85	.96	.82	.....	.84	.97	.94	.86	.79
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	.....	1.02	.95	.....	.89	.99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	.....	1.05	.98	.....	.92	1.03	.90	.....	.91	1.06	1.02	.....	.....
27-27.9	1.10	1.05	1.11	1.12	.....	1.10	1.03	.....	.....	1.02	.....	.96	1.06	.95	.....	.95	1.10	1.06	.....	.....
28-28.9	1.14	1.10	1.14	1.15	.....	1.14	1.07	.....	.....	1.06	.....	.99	1.10	.99	.....	.99	1.15	1.10	.....	.....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	.....	.....	1.09	.....	1.03	1.14	1.03	.....	1.02	1.20	1.14	.....	.....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B.	.....	.....	.....	1.07	1.17	1.08	.....	1.06	1.25	1.18	.....	.....
31-31.9	.....	.....	.....	1.24	Line	1.24	1.22	Ship	Kettleman Hills			1.11	1.21	1.12	.....	1.09	1.29	.....	.....	.....
32-32.9	.....	.....	.....	1.27	.....	1.27	1.27	.....				1.14	1.25	1.16	.....	1.13	1.34	.....	.....	.....
33-33.9	.....	.....	.....	.....	.....	.....	1.32	$1.28		1.19		1.18	1.28	1.20	.....	1.17	1.38	.....	.....	.....
34-34.9	.....	.....	.....	.....	.....	.....	1.37	1.32	.....	1.23	.....	1.22	1.32	1.25	.....	1.20	.....	.....	.....	.....
35-35.9	.....	.....	.....	.....	.....	.....	1.42	1.35	.....	1.27	.....	1.25	.....	1.26	.....	.....	.....	.....	.....	.....
36-36.9	.....	.....	.....	.....	.....	.....	1.46	1.39	.....	1.31	.....	1.29	.....	1.33	.....	.....	.....	.....	.....	.....
37-37.9	.....	.....	.....	.....	.....	.....	1.51	1.43	.....	1.35	.....	1.32	.....	1.37	.....	.....	.....	.....	.....	.....
38-38.9	.....	.....	.....	.....	.....	.....	1.56	.....	.....	1.39	.....	1.36	.....	1.42	.....	.....	.....	.....	.....	.....
39-39.9	.....	.....	.....	.....	.....	.....	1.61	.....	.....	1.43	.....	1.40	.....	.....	.....	.....	.....	.....	.....	.....
40-40.9	.....	.....	.....	.....	.....	.....	1.66	.....	.....	.....	.....	1.43	.....	.....	.....	.....	.....	.....	.....	.....

* Price effective March 6, 1936.

Edited by
WM. V. GROSS, Associate Editor

Review of Petroleum Industry In Trinidad . . . 1935

By VICTOR BRYAN, Trinidad Leaseholds, Ltd.

IN THE compilation of this review, it is not proposed to deal at length with any one phase of oil field operations in Trinidad. The intention is to recite simply the broad achievements within the industry during the past year, and to make note of salient points affecting the development of petroleum in the island as a whole.

The oil industry of Trinidad has been for many years the economic mainstay of the colony and has been steadily increasing in importance year by year. According to His Excellency the Governor of Trinidad, Sir Claud Hollis, in his speech at the 1935 annual dinner of the Trinidad Branch of the Institution of Petroleum Technologists, "had it not been for the presence of oil and the development of the oil industry in Trinidad, the people of the colony would have suffered far more than had been the case."

A good indication of the importance of the industry to the island is apparent in the following figures: In 1934 the value of the exports of petroleum and its products was approximately £3,000,000, equivalent to actually 63 percent of the total exports of the colony for that year. The export figures for 1935 are not yet available, but this can be expected to be declared even higher than for 1934.

A change which was for many years past indicated in the Oil Mining Regulations received consideration, and as a result a new set of regulations was issued at the end of 1934. Indications are that the new regulations constitute an improvement on the old ones, though it is believed that some difference of opinion exists on an important point relating to the size of the areas to be leased.

Preference Important

The old subject of British preferential treatment of empire-produced oils as proposed by the deputation from Trinidad which visited England for that purpose in 1934 is still a burning question, despite latest public information that the home government had officially declared itself as being unable to grant such a preference. There are several points which bring weight heavily to the side of granting this preference, and Trinidad has not lost hope of achieving the desired end. Recently a large public meeting took place in Port-of-Spain at which certain resolutions were passed in support of the plea for this preference. This meeting also appointed a delegation of prominent citizens to state the case before the permanent under-secretary of state for the colonies who was then in Trinidad on an unofficial visit. In this way the matter is again to be brought forcibly before the home government for further consideration.

In this connection, such points as the evident advantages of reliable petroleum resources within the empire in relation to the question of national defense must occur to the mind, and one wonders why Great Britain has not kept closer faith with the agreed principles of reciprocity which had been advocated at the historic Ottowa conference.

With the trend towards better prices, a measure of preference would give a most opportune fillip to the oil industry of Trinidad and thus help to place it securely on the sound basis towards which it is striving.

Statistical Notes

Statistics show that 1935 has made "all time" high records regarding footage drilled for year, monthly production peak, and total production obtained for year. The tables below give the figures for 1935 under the abovementioned heads and show the corresponding "next best" totals:

(a) Footage Drilled for Year

		Feet
	1935	436,299
(next best)	1930	372,656
		63,643

(b) Monthly Production Peak

		Barrels
	December 1935	1,087,884
(next best)	July 1934	1,008,669
		79,215

(c) Total Production for Year

		Barrels
	1935	11,671,147
(next best)	1934	10,894,363
		776,784

An interesting comparison of operations over the last three years is obtained from the following:

	1933	1934	1935
Footage Drilled	235,519	351,783	436,299
Prod. Obtained (barrels)	9,561,354	10,894,363	11,671,147

Approximately 139 wells were started during the past year, and of this number some were still drilling at the beginning of 1936. Roughly, however, the total number of wells drilled in the island can be placed at 2245.

The greatest depths achieved during the year were 7354 and 7225 (in the Fyzabad area), the bulk of the drilling being between 3000 and 5000 feet.

There were approximately 1015 producing wells in Trinidad at the end of the year. Comparing these with the end of 1934 from the standpoint of producing methods, we find the following:

	Percent	Percent	
Flowing	26	28	
Pumping	50	45	(Success with
Various gas lift	9	13	Plunger lift)
Producing intermittently by swabbing, bailing etc	15	14	

Comparative table of total production year by year for last 10 years

Year	Barrels	Year	Barrels
1926	4,971,471	1931	9,743,502
1927	5,380,464	1932	10,126,065
1928	7,684,450	1933	9,561,354
1929	8,715,652	1934	10,894,363
1930	9,418,907	1935	11,671,147

Total oil produced in the island from the inception of the industry to end of 1935:

	Barrels
(Previous to 1935)	104,614,791
(Plus 1935 production)	11,671,147
	116,285,938

Production Figures for 1935, Month by Month (In Barrels)

January	915,220	July	988,341
February	843,619	August	1,003,383
March	919,848	September	992,445
April	899,946	October	1,015,492
May	953,108	November	1,078,957
June	972,904	December	1,087,884

Comparative Statement of Oil Refined in the Colony, Year by Year

		Barrels
Previous to	1920	4,051,373
	1920	1,395,487
	1921	1,806,016
	1922	1,820,018
	1923	2,360,279
	1924	3,433,902
	1925	3,790,343
	1926	3,786,876
	1927	4,796,223
	1928	6,725,383
	1929	7,642,726
	1930	7,989,679
	1931	6,899,144
	1932	7,635,296
	1933	9,129,810
	1934	10,846,584
	1935	* (see below)

* 1935 total not available at time of writing; estimated to be above 1934 total.

Field Operations

Significant note has been taken here of the high drilling speeds achieved by operators in the Gulf Coast and California, and a certain amount of research has been made locally in the direction of determining the influence on costs of increased drilling speeds on Trinidad wells. This question is really not of as much moment in Trinidad as it is in the U.S.A., since

the proportion of individual well costs attributable the staff salaries and labor wages locally is only about 20 percent as compared with the reported average of some 50 percent on U. S. fields.

The average rig in Trinidad drills between 1000 and 2000 feet per month, and the average cost figure per well can be placed at between $20,000 and $30,000 (depending principally on the amount of barytes it is necessary to use in keeping the well under control).[1]

There is nevertheless a noticeable tendency towards the use of bigger pumps, higher steam pressures, better mud treatment, and the general use of reamers, etc., in the attempt to achieve better results.

Economic production has not yet been obtained below 6000 feet. However, with the progressing assessment of production from the deeper sands, the trend is towards the purchasing of heavier machinery and the exercise of foresight in the fitting up of present installations so as to be easily adaptable to the deeper and more rigorous drilling which present operations seem to indicate for the future.

It is well known that the Trinidad oil sand is not very regular in its occurrence, and that in most cases a great deal of coring and testing is essential in order to locate the desired pay sand. This factor of course has a very pertinent bearing on drilling speeds, and the desire for improvement is reflected in experiments with improved testing and coring facilities.

Straight hole drilling was quite an obsession with operators in the earlier part of the year, but in the light of experience gained from experiments with various drill stem combinations, this matter has ceased to be the problem it was in the past. The use of heavy drill collars suitably stabilized in conjunction with full hole tool joints, permitting of the application of more weight, has helped considerably in this matter.

The necessity for close attention to mud control and treatment is generally appreciated. The use of a mud weight as high as 130 pounds per cubic foot is not unusual on Trinidad fields. The vibrating screen is not yet standard equipment over the island, but it is known that appreciable improvements have accrued by its adoption in many cases.

The practice of gas conservation is more or less general, and during 1935 the government passed a gas conservation law which is intended to eliminate any wastage there may have been in this direction.

Experiments with gas-drive, repressuring and pressure maintenance mentioned in last year's review are progressing steadily. Information on these operations is not available, but it is understood that a certain amount of success has been achieved. However, the non-continuous nature of Trinidad oil sands tends to make all questions concerning movement of oil very involved subjects, and it will probably be sometime before irrefutable evidence is forthcoming as to the economy of these forms of production.

Spacing—Although well spacing is a matter entirely dependent on circumstances, there are evidences of 600, 800 and even 1000-foot spacing between wells in contrast to the 300 or 400 feet which was common in previous years. This wider spacing in new territory has the advantage of providing information over a large area in a short time, and of course does not preclude the later drilling of intermediate wells wherever necessary.

Pumping—The wisdom of slower pumping speeds and longer strokes is appreciated. The number of pumping wells over the island in 1934 was 426 as compared with 460 at the end of 1935.

Gas Lift—All that can be said of this method is to reiterate the statement made last year that it continues to fulfill its proper function as a link between the flowing and pumping stage in the life of a well. Various forms of intermittent flow are in use, and the plunger lift is also being operated with great success.

Scientific Data—Bottom hole pressure determinations have lapsed into a matter of routine on certain fields, periodical surveys of this important factor being made on new wells, commencing from as soon as the well has been put on steady production initially. Such data along with a policy of analyzing representative cores for porosity, permeability and saturation factor determinations should go a long way towards providing the scientic information necessary for formulating long distanced exploitation schemes in the future.

The Trinidad Branch of the Institution of Petroleum Technologists is going from strength to strength. It is not enough to say that the closest attention is being paid to all the latest proven scientific measures which may be necessary in order to exploit the petroleum resources of the colony in the most efficient manner.

General Developments

Four new oil companies were registered in the island during 1935 as compared with one each in 1934 and 1933. Of these, one is already active near Vessigny, La Brea, on a lease which was previously operated by the Trinidad Lake Asphalt Company and which had been idle for sometime.

Various companies are contemplating wildcat wells, and it is understood that actually some 10 or 12 locations are projected although none of these had been started at the time of writing. The locations cover almost every corner of the island, and the drilling of these wildcats will commence the exploration of almost all the remaining potential oil-bearing areas.

The old Oropouche field again comes into the picture as a commercial unit, and it is reported that satisfactory production is being obtained on this lease.

Worthy of mention is the fact that Kern Trinidad Oilfields recently completed a sensational new well which got temporarily out of control after entering a highly prolific oil sand. The well came in as a normal producer for about 700 barrels per day with the flow increasing rapidly to large proportions. It would appear that the pressure subsequently built up so high that oil was forced up outside the casing into the surrounding formation, eventually making its appearance in surface seepages in the vicinity. The older companies can be said to be all carrying out ambitious programs which spell a further expansion of operations during 1936.

Conclusion

Taking into consideration the spirit of general optimism prevailing within the industry at the present time, and judging from the good record produced in all sections of operations during 1935, it is anticipated 1936 will mark the approach of another boom period for the oil business in Trinidad.

General expansion, continued exploratory work, the tendency towards more scientific field operation, new companies, and the hope for better prices plus a measure of preferential treatment for Trinidad oil in Great Britain, are some of the landmarks which give birth to the era of a renewed prosperity in the Trinidad oil industry.

[1] E. C. Scott, in paper read to I.P. Techs., Tdad. Branch.

BRITISH GASOLINE

Considering consumption of gasoline in Great Britain in 1920 was only 181,373,000 gallons, the increase of that nation to a consumption figure of 1,315,453,000 gallons in 1935 has been remarkable.

The above figures, released through the American consulate general in London, revealed also gasoline consumption in 1934 amounted to 1,211,454,000 gallons in 1934 and 486,960,000 gallons in 1925.

While large quantities of gasoline in Great Britain today are refined from imported crude, coal and Scottish shale oil, prior to the World War practically all of the country's gasoline requirements were imported.

CRUDE STOCKS UP

Stocks of domestic and foreign crude petroleum on March 7 totaled 310,105,000 barrels, the Bureau of Mines reports. That was 661,000 barrels more than on hand a week previously. For the new week crude production averaged 2,795,000 barrels daily, compared with 2,805,000 barrels daily the week before. Crude runs to stills declined 145,000 barrels from the previous week to 2,730,000 barrels daily, after having been on the increase several weeks previously. Daily average imports of crude oil were 91,000 barrels, compared with an average of 76,000 barrels for the previous week.

Publish Proceedings of Institute's Annual Meeting

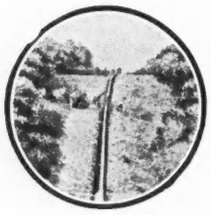
Publication of the first three sections of the proceedings of the American Petroleum Institute's 16th annual meeting, held November 11 to 14, 1935, at Los Angeles, California, has been completed.

Section one contains proceedings of the general session, resolutions, and reports of the board of directors, departments, and officers. Section two presents marketing papers and reports, and section three is devoted to refining. The fourth section, now in preparation, covers the production sessions.

Copies are available from the institute's headquarters, 50 West 50th Street, New York, at 50 cents for each section.

Pipe Line Activity

NEW PROJECTS— CONSTRUCTION PROGRESS



AMPLE CAPACITY

Rodessa lines built and building expect drilling

Shreveport.—Rodessa, which for some time suffered from a lack of sufficient pipe line outlets, last week had reversed the tables and had more pipe line outlets and prospective outlets than it had crude to supply.

Magnolia Petroleum Company is completing a 13-mile 8-inch line to the Rodessa field from Pine Island, Caddo Parish, and is connecting to United Gas Company's Ardis lease in Section 14-23n-16w, on which are 4 producing wells. These connections were formerly handled by Standard Pipe Line Company. Magnolia Pipe Line Company plans to handle 7000 barrels daily at Rodessa. Standard Pipe Line Company recently announced it will handle the full allowable of 400 barrels per day from all Rodessa wells and Gulf Refining Company's line to Marion County, Texas, is handling 12,000 barrels daily. Rodessa's average production one day last week was 44,680 barrels from 107 producers.

Besides Magnolia Pipe Line Company's line now being completed, progress is being made on other lines to Rodessa. Arkansas-Louisiana Gas Company has completed laying 83,000 feet of 90,000 feet of its 8-inch welded line which will connect at Oil City with its line to Shreveport.

Shoreline Oil Corporation is stringing 4-inch pipe from its refinery at Lewis to Rodessa. East Texas Pipe Line Company has 65 percent of its Rodessa-Longview line completed. A booster station at Jefferson, Texas, has been completed, and one at Rodessa is under way. It is planned to complete this line by April 1. Effective March 25, this company has posted a tariff of 12½ cents per barrel from Sexton, Louisiana, its Rodessa terminal, to Johns Station at Longview. This company is reported to have contracted with Pelican Oil & Gasoline Company for 5000 barrels of its output.

Atlantic Pipe Line Company's pipe line right-of-way to Rodessa from East Texas has been purchased and work is expected to start soon. Texas Pipe Line Company is ready to start its line to Rodessa from Pine Island.

Griswold Refining Company's topping plant at Rodessa has begun operation. This company is taking about 1600 barrels of Rodessa crude daily.

The answer to all of the pipe line outlets for Rodessa and the present allowable is that more drilling will be done immediately.

Pelican Oil & Gasoline Company is building a natural plant of 50 million cubic feet of gas daily on its Sexton lease in Section 14-23n-16w. The plant is being built by Frick-Reid Supply

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Company which has a financial interest in the project. The plant is expected to be completed by April 15 or May 1. Haynes Production Company is contemplating a $250,000 gasoline plant on its Lawton lease in Section 14-23n-16w.

Phillips Petroleum Company, which had contemplated a gasoline plant at Rodessa, is reported to have held up plans for this project.

Lincoln Wildcat Outlet

Arkansas - Louisiana Gas Company has bought right-of-way for a 10-inch line from its Fowler 1, Section 10-17n-4w, discovery gas well in the Simsboro (Montcalm) area, Lincoln Parish, recently completed in oolitic lime at 5303 feet as a saturated gasser, to its Shreveport-Monroe trunk gas line in Section 21-19n-4w. As soon as Lide & Greer's S. Gardner 1, Section 10-17n-4w, is completed, contract for the line will be let. Gardner 1 is shut down waiting on completion of a well by the same operators in Bienville Parish, when it will be deepened. Its objective is oil. Arkansas-Louisiana Gas Company own the gas rights on the block. This test is reported to have checked 40 feet higher on top of the first anhydrite than did Fowler 1.

EXTENDING FITTS LINE

Tulsa.—Extension of Magnolia Pipe Line Company's Oklahoma system from Maude station to the Fitts field is underway, and construction work is scheduled to be completed by April 10. This unit consists of 26½ miles of eight-inch welded trunk line, and an extensive field gathering system is nearing completion. Two 55,000-barrel steel tanks are being erected adjacent to the Fitts field booster station.

RECONDITIONING LINE

Dallas, Texas.—Magnolia Pipe Line Company is reconditioning its 8-inch trunk line, extending southeast from Burkburnett station to Bowie, where connection is made with the multiple system between Oklahoma and Beaumont. The Burkburnett-Bowie unit consists of 55 miles of line that has been in continuous service for about 24 years It has been previously renovated.

PLUGGED BACK

Binger, Okla. — Extension of deep production to the southwest in the Binger area of northeast Caddo County, was given up during the week when Denver Producing and Refining Company plugged back to 7900 feet and whipstocked out of the casing to test showings between that depth and 8000 feet in Sah-Cam 1, C SE SE 33-10n-10w, 1000 feet southwest of the discovery well. Sah-Cam 1 was drilled to 10,084 feet from which depth it made about 200 barrels in three days. The discovery well was drilled to 11,230 feet, plugged back to about 10,000 feet and is now capable of making an average of about 60 barrels per day of very high gravity oil. Anderson-Prichard Oil Corporation is handling the oil through its plant at Cyril, Oklahoma.

Work on Increase

MORE FIRST REPORTS AND COMPLETIONS; INITIAL DOUBLED

WEEKLY STAFF REPORT

Tulsa.—A good showing of oil which promises to place Love County among the producing counties of Oklahoma, the good showing of the second well in the Jesse pool of southeastern Pontotoc County and the large potentials being yielded by wells in the "Mansion Area" of the Oklahoma City pool combined with a material increase in new work and completions to make the week in Oklahoma one of more than average importance. Scouts made 75 first reports from 23 Oklahoma counties, the greatest advance that new work has shown in the state for more than a year. Osage County took the lead with 13 first reports; Seminole County had 11; Pontotoc County, 8; Hughes and Pawnee Counties, 5 each; Carter County, 4; Noble, Oklahoma, Okmulgee and Tulsa Counties, 3 each; Jackson, Muskogee, Okfuskee and Wagoner Counties, 2 each; and Marshall, Stephens, Garfield, Grady, Lincoln, Payne, Beckham, Pottawatomie and Creek Counties, 1 each. This compares with 66 first reports during the preceding week.

Although the upturn in the number of completions was only about 10 percent, initial production was almost doubled. Included in the 59 completions were 36 oil wells with total initial rating of 42,028 barrels, 5 gas wells with a combined initial volume of 35,000,000 cubic feet, 15 dry holes and 3 abandoned locations. Three of the dry holes were in wildcat areas. Completed drilling footage was stepped up to 151,810 feet of which 11,809 feet was in the 3 wildcat dry holes and 1247 feet in 6 old wells recompleted at greater than the original depths.

Big Well Increase

FITTS DISCOVERY WELL RESPONDS TO DRILL

Ada, Okla.—The eastern part of the Fitts pool vied with the nearby Jesse pool for the role of important developments during the past week. One of the largest Hunton lime wells in the Mid-Continent area was completed in the former and the east offset to the discovery well in the latter established an initial record which is bringing about deepening of the discovery well.

Continental Oil Company's Simpson 1, SW SW NE 12-1n-7e, east offset to the discovery well in the Jesse pool and the second producer in that relatively new area, was deepened from 4662 to 4692 feet early in the week and responded with a flow of 2045 barrels in four hours while pulling the drill pipe through pressure control equipment. Later it flowed 420 barrels in one hour through a restricted opening.

Tools were being moved from this location to the discovery well, McCarty 1, SE SE NW 12-1n-7e, completed in December, 1935, and given an initial potential of 13,464 barrels at 4633 feet. At this depth it was 478 feet below top of the Bromide formation. Simpson 1, at the present depth of 4692 feet, is 532 feet below top of the Bromide.

In contrast to the east offset to the discovery well The Texas Company's Simpson 1, SE NW SW 12-1n-7e, two locations south and two west of the discovery well was drilling at 4816 feet and apparently running about 1400 feet structurally lower than the discovery well. A fault with considerable displacement is indicated between the two. Continental Oil Company's James 1, NE NE SW 12-1n-7e, south offset to the discovery well, topped Sylvan shale at 3994 feet, Viola

lime at 4119 feet and had a showing of oil from 4119 to 4228 feet. The crew is running 9-inch casing to test this showing.

In the eastern part of the Fitts pool Fleetborn Oil Company's Norris 1, SE SE SE 20-2n-7e, topped Hunton lime at 3540 feet and stopped at 3552 feet which was top of the Sylvan shale. At this depth it yielded 250 barrels in two hours through an .82-inch choke through 2½-inch tubing. Shut in pressure was 750 pounds per square inch. The initial performance eclipses any other Hunton lime completion in the Mid-Continent area and exceeds the expectation of those who have been most enthusiastic toward the Fitts pool. Blackstock Drilling Company's Moody 1, NE NE NE 27-2n-7e, had a good showing of oil and gas in Hunton lime at an unreported depth. Production in commercial quantities at this location would mean a half-mile extension.

Shell Petroleum Corporation's Hill 3, SE SE NW 30-3n-10e, wildcat test in northern Coal County was drilling below 4752 feet in black shale of Atoka shale and running very low. Hopes of production at this location are slight in view of the abnormal thickness of Atoka.

MORE COMPLICATIONS

Oklahoma City. — Oklahoma City's drilling extension controversy was further complicated last week when a representative of the land and leasing division of the United States Geological Survey has been sent to the area to investigate the possibility that lands upon which the federal government owns the mineral rights is being drained or is likely to be drained by drilling which may be done in the future in zones which are now proposed for inclusion in the development area.

March 24 citizens will vote on the question of opening to the drill a large area lying immediately north of the state capitol building.

Early in the week what is being termed as an "outlaw" well was started on the Harn tract which lies immediately to the southwest of the capitol building. The location, owned by K. and L. Petroleum Company, is on a tract at one time owned by Wirt Franklin Petroleum Corporation and associates and upon which the latter tried to start operations several years ago but were prevented from doing so by city and state action.

OKLAHOMA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Shell, Higgins "A" 2, nw sw se 6-2s-2w (pb 1845)	¶8	2023
Higgins "A" 3, nw nw se 6-2s-2w	¶3-116	1967
Wirt Franklin 60, se ne ne 8-4s-3w	16	1165
COMANCHE COUNTY—		
John Nicholas, Householder 1, ne ne sw 8-2n-10w	*	960
Houghton Royalty et al, Price 1, sw sw nw 27-2n-10w	*	1050
CREEK COUNTY—		
Shibley Oil, Timothy 2, cnw nw 13-17n-7e	60	2002
Buckles, Frailey 6, nw nw nw se 22-18n-8e	*	3054
Oklahoma Gasoline Plant, Woods 7, ne ne ne sw 27-18n-8e	25	2592
JACKSON COUNTY—		
Conyer et al, Robertson 1, ne ne se 15-1n-20w	*	1611
LINCOLN COUNTY—		
Fred McDuff, Jacob 1, ne ne se 10-15n-5e	*	4345
MUSKOGEE COUNTY—		
Robinson, London 2, cwl ne sw 17-13n-16e (otd 2132)	25	2157
NOBLE COUNTY—		
Shell, Watts 1, sw sw se 22-22n-2w (pb 3904)	*	4955
OKFUSKEE COUNTY—		
Fleming, Wagner 1, sw sw se sw 2-10n-11e	*	2147
Carter Oil Co., Hicks 1, cne se 11-11n-8e	1056	3976
OKLAHOMA COUNTY—		
Pure Oil, Malm 5, nw se sw 30-14n-3w	¶11½-5552	6696
OKMULGEE COUNTY—		
Clark, Hoskins 4, sw sw se se 22-13n-12e	lcn.	abd.
Batser, Jefferson 1-A, nw nw sw se 4-14n-15e	*	1074
Howard, Rentie 1-A, nw nw se 18-14n-15e	15	1224
Klingensmith, Farr 12, nw nw se nw 35-16n-11e	390	2329
OSAGE COUNTY—		
Higgins 1, sw sw sw 12-21n-10e	lcn.	abd.
Cooper 2, ne nw sw nw 35-21n-10e	*	1565
Files & Bay Oil, 1, csl nw 19-23n-9e	42	2150
Lewis Prod., 13, nw sw nw 21-24n-7e	500	2665
Peters Pet., 8, se nw ne 24-24n-7e (otd 738)	40	765
Sinclair Prairie, 5, ne nw ne 16-25n-6e (pb 2838)	705	2842
Carter Oil, McKinley 3, ne sw sw 35-26n-6e	¶4-720	2863
PONTOTOC COUNTY—		
Stanolind, Norris "E" 5, nw nw sw se 25-2n-6e (pb 4237)	4116	4297
Amerada, Norris 3, se sw se 26-2n-6e	¶8-1638	4455
Sinclair Prairie, Burris 1-A, se ne nw 27-2n-7e	¶2¾-3093	4305
Sinclair Prairie, Burris 2-A, sw nw nw 27-2n-7e	¶3-2940	4290
Burris 3, sw ne nw 27-2n-7e	¶2¾-3720	4295
Fleetborn et al, Woolley 4, sw ne se 28-2n-7e (pb 1700)	¶13	1856
Magnolia, Statler 2, ne se sw 28-2n-7e	¶4½-2224	4300
Stahl, Dennis 1-A, sw ne nw 28-2n-7e (pb 1635)	¶12½	1736
Moore, Harper 6, sw nw ne 29-2n-7e	¶5-3580	4364
Schauers 13-A, nw nw nw 29-2n-7e	¶2¾-2239	4320
Carter Oil, Richards 6, se nw se 30-2n-17e (otd 4200)	¶1¼-2673	4400
Moore, Mitchell 1, nw sw nw 31-2n-7e	3714	4515
Mid-Continent, Milligan 1, se ne ne 25-5n-4e (otd 2346)	35	2400
Delaney, Constance 1, se ne ne 20-5n-6e (otd 1825)	*	2760
POTTAWATOMIE COUNTY—		
Stanolind-Amerada, Rushing 1, se se sw 32-11n-4e	240	4460
Tom Phillips, Wright 1, cn¼ ne se 27-11n-6e (pb 4155)	*	4166
ROGER MILLS COUNTY—		
Anderson-Kerr et al, Teeter 1, cse se 2-17n-25w	*	6504
SEMINOLE COUNTY—		
Francis, Huddeston 2, ne sw sw 19-5n-6e	302	2558
Vierson, Jones "A" 1, nw se nw 11-6n-6e	lcn.	abd.
Jones 2-A, se nw nw 11-6n-6e	190	2427
Fleetborn, Cahill 1, sw nw ne 7-6n-8e	85	2930
Continental, Milsey 2, se sw sw 11-7n-6e (otd 4312)	160	4318
Deep Rock Oil, Hagler 2, nw se ne 19-9n-7e	150	4095
Carter Oil, Pipkin 3, ne sw 2-10n-6e	650	4135
Ferguson 2, ce¼ nw nw 11-10n-6e	864	4185
Magnolia, Browning 5, cw¼ sw nw 14-10n-6e	110	4182
STEPHENS COUNTY—		
Norton & McAlester, Nigh 3, se ne ne sw 11-2s-8w	*	2097
TULSA COUNTY—		
Bovaird, Coser 19, sw sw ne 3-17n-12e	25	2375
Owens, Carvey 6, nw sw nw 27-18n-14e	¶½	754
Eppler, Morrison 1, sw sw se sw 31-18n-14e	*	1643
Johnson Oil Ref., Stebbins 1, se se sw se 30-19n-10e	18	2261
WAGONER COUNTY—		
Greet et al, Tiger 3, ne ne sw nw 11-17n-15e	*	820
Webb, Boudinot 1, sw sw ne ne 11-17n-15e	¶1	1158

*Failures; †Junked; ¶Million cu. ft. gas.

COME MARCH 17
Seminole discovered 13 years ago St. Patrick's

Wewoka, Oklahoma.—St. Patrick's Day is one of true importance here for it was on that day 13 years ago that R. H. Smith brought in the first gusher in Seminole County and created a campaign which led to discovery of the Seminole District.

In honor of this event the Wewoka Chamber of Commerce sponsored its annual oil jubilee for which many state oil pioneers were present. According to the story generally accepted in the district the location was staked in a spot which proved to be inaccessible to the teamsters who hauled out the rig and the location was moved over into another section which proved to be Section 33-8n-8e, on the Betsy Foster farm.

March 17, 1923 the well came in flowing at the rate of about 2800 barrels from a sand at 3150 to 3157 feet in the upper part of the Cromwell horizon. The sand was named in honor of its discoverer. The entertainment which held the attention of several thousand visitors consisted of boxing, a floor show and barbecue dinner with dancing at several points later in the evening.

ANOTHER EXTENSION
Potentials are high in Mansion area

Oklahoma City.—The performance of a half-mile extension well in the "Mansion Area" of the Oklahoma City pool and the output of "Mansion Area" wells on second potential tests were the highlights of the past week in the Oklahoma City district.

Phillips Petroleum Company and Blackgold Petroleum Corporation's Sawyer 1, SE NE NE 22-12n-3w, flowed 4884 barrels in six hours and was given an official potential rating of 20,090.10 barrels along with 17,000,000 cubic feet of gas. Production by hours was as follows: 736 barrels, 832 barrels, 836 barrels, 833 barrels, 823 barrels and 824 barrels. Production was by natural flow from Wilcox sand.

Superior Oil Company of California's Sibley 1, SW NW SW SW 23-12n-3w, completed in January, 1936, and given a potential rating of 11,967 barrels, was regauged during the week and yielded a new potential of 24,938 barrels. Several wells in the new area have shown material increases on their second potential gaugings.

Barnsdall Oil Company extended its activities in the area just outside of the townsite and directly north of the present new development when location was staked for Edwards 1, 150 feet south and 150 feet west of the center of the east half of section 15-12n-3w. It is near the same operator's Park-Geyer 1, SE SW SE 15-12n-3w, now rigging up and scheduled to spud within the next few days.

Edmond Pool

Marathon Oil Company's Dahl 10, NE SE SE 31-14n-3w, northwest diagonal offset to the discovery well in the Edmond pool of northwestern Oklahoma County, topped second Wilcox sand at 6309 feet and was drilling ahead. It was structurally the second highest well in the pool on top of the first Wilcox

sand and is a north offset to one of the first large wells completed in the pool.

Moore Pool

Sinclair Prairie Oil Company et al's Marvey 1, NW SW NE 21-10n-2w, three locations north and one west of the discovery well in the Moore pool of northern Cleveland County, was pulling out to measure drill pipe with total depth at 6968 feet. It is within about 300 feet of the subsurface point at which the discovery well found second Wilcox sand and produced upwards of 150,000,000 cubic feet of wet gas. Gas from the discovery well carries a high content of 67.2 gravity gasoline or distillate. A test one-half mile to the southwest of the discovery well was completed as a dry hole about 300 feet structurally lower than the discovery well and another slightly over a mile to the southeast failed to find production after running lower about the same amount.

Love County Showing

STOCKTON 1 HAS 5,000 FEET OF OIL IN HOLE

Ardmore.—It appeared that Love County finally had broken into the list of producing counties in Oklahoma late last week when Sinclair Prairie Oil Company shut down to build tankage with 5000 feet of 35-gravity oil standing up in the hole in Stockton 1, SE SE SW 26-6s-2w, 16 miles northwest of Marietta in the northwestern part of the county. Top of the sand was encountered at 6892 feet and penetrated to 6914 feet, the total depth.

Typical of southern Oklahoma there is a question as to the horizon from which the oil is coming but several of the leading geologists are of the opinion that it is of Deese age in the lower part of the Pennsylvanian series.

This is one of the most interesting tests ever drilled in the geologic province which is bounded on the north by the Arbuckle Mountains and on the south by the Red River Arch. It was started with the presumption that as much as 8000 feet of formations might have to be drilled in order to give the area a fair test.

Using a wire-line core barrel the operators took more than 300 cores between the surface and 7000 feet. At 7165 feet the tools were stuck in the hole and efforts to circulate at high pressure did not break through the frozen section. The hole was plugged back to 5432 feet and new hole drilled from 5406 feet. Seven-inch casing is now set at 6893 feet.

Casing Set

Carter Oil Company et al cemented 7-inch casing at 8015 feet, 15 feet off bottom in Williams 1, SW NE SW 27-2s-3w, Simpson discovery well in the old Fox pool of western Carter County. The hole was drilled to 8088 feet last October and late in that month the well blew out and flowed for almost a week after it had been given acid treatment to loosen stuck drill pipe and tools. Immediately after injection of the acid the tools were raised to 8058 feet, 30 feet off bottom where they were again stuck. When the well had been killed with mud it was found that circulation had been lost. The application of pressures up to 3700 pounds square inch started the drill pipe to leaking at several points and circulation was never reestablished until the new hole was started at 6089 feet. Considerable difficulty was experienced in keeping the new hole away from the old and the abandoned drill pipe was encountered several times. The new hole was cemented back once in overcoming this difficulty.

One-half mile southeast of production in the old Bayou pool in western Carter County, The Texas Company and J. H. Hudson were bailing and cleaning out with total depth at 4183 feet in Cathey 1, SE NE NE 6-5s-1w. This test created considerable excitement about two months ago when it encountered sands at 4098 to 4118 feet and 4135 to 4157 feet. The 8⅝-inch casing was cemented at 4095 feet and when the hole had been deepened to 4164 feet operators had about 2000 feet of 25-gravity oil in the hole. A shot damaged the pipe which was swaged out and the hole deepened to 4183 feet with no apparent increase. Tubing and rods were run early this month and the well yielded at the rate of about six barrels of oil per hour.

Five miles northeast of Marietta in northeastern Love County, Amerada Petroleum Corporation and Stanolind Oil & Gas Company have drilled the plugs after cementing 10-inch casing on top of the Viola lime at 2427 feet in Westheimer 2, SW SE SW 27-6s-2e. Total depth in this test is 6797 feet presumably in the Simpson Group, which was topped at 3515 feet. Dips ranging from 60 to 90 degrees have been observed in cores taken in the Simpson, a fact which indicates that the beds may be tilted sharply rather than indicating an abnormally great thickness of that group.

KAY COUNTY LOCATION

Tulsa.—W. O. Allen and associates announced location for Fulton 1, SE SE SE 18-27n-4e, a wildcat test eight miles west of the old Burbank pool in eastern Kay County. Contract depth is 3300 feet for a cable tool test to Bartlesville sand.

Kansas Pools Extend

NEW WORK DROPS IN SUNFLOWER STATE

WEEKLY STAFF REPORT

Wichita, Kansas.—Kansas operators experienced a relatively quiet period during the past week with no wildcat tests of major importance reaching objectives. In northwestern Rice County the Wilcox sand discovery of week before last was being looked upon as one of the most important of the year but the well is yet to be tested on the pump.

Extension of the Graber and Gouldner pools of northwestern Rice County were the features of the week for the western part of the state.

New work showed a decrease as scouts made 31 first reports compared to 41 during the preceding week. Russell County was in the lead with five; Reno and Rice Counties had four each; Barton and Rush Counties, three each; Cowley and McPherson Counties, two each; and Haskell, Stafford, Woodson, Butler, Ellsworth, Harvey, Pratt and Sedgwick Counties, one each.

Included in the completions were 24 oil wells with initial of 15,883 barrels, six dry holes and two abandoned locations, 32 for the week. Complete drilling footage included 14,534 feet in four wildcat tests and 691 feet in two old wells which combined with the remaining completions boosted the footage to 89,372 feet.

Pools Get Outlet

More than 20 pools in the western part of the state were under development after receiving their first pipe line outlets early in January and during the past week. All western counties in the area between the meridian and range line 20 west are receiving considerable attention and it is doubtful that more than a few months will elapse before a number of pools will be without connections and those which have recently been connected may overload the systems serving them.

Continental Oil Company and Shell

Petroleum Corporation's Root 1, NW NE NE 36-18s-18w, south of the Geneseo pool in northwestern Rice County, promises to be one of the most important discoveries in western Kansas since the first of the year. This wildcat test topped Wilcox sand at 3154 feet. The first nine hours after the plugs were drilled 2500 feet of high gravity oil entered the hole with tools on bottom at 3181 feet. The hole is being cleaned out preparatory to running tubing and rods for a pumping test. This is the first Simpson production in Rice County, all previous discoveries having been completed in the Arbuckle lime and Kansas City-Lansing series.

Empire Oil & Refining Company's Gouldner 3, SE SW SW 9-18s-9w, northwesternmost test in the Gouldner pool in northwestern Rice County, drilled to 3239 feet in Arbuckle lime and ran tubing and rods to test with 2900 feet of oil standing in the hole. It is the west offset to the same operator's Gouldner 1 which was completed for 481 barrels in the same horizon and two locations west of Gouldner 2 which was drilled to 3260 feet and completed as a dry hole after topping Arbuckle lime at 3253 feet.

Continental Oil Company's Boeckner 1, NW SE SE 29-21s-1w, extended the Graber pool of southeastern McPherson County more than a quarter-mile to the southeast, when the hole filled with oil from the Hunton lime topped at 3313 feet and penetrated to 3335 feet. It is two locations east and three south of the same operator's Hetzke 1, SW SW NE 29-21s-1w, which recently extended the pool southeastward and during the past week yielded 1415 barrels on a 22-hour potential test. The discovery well, Continental Oil Company's Graber 1, NE NE NW 29-21s-1w, was completed in May, 1934, yielding initially 870 barrels natural and 1294 barrels after acid treatment from Hunton lime topped at 3274 feet and drilled to 3298 feet.

Cowley County

E. B. Shawver and D. M. Wilt's Bahruth 1, SW NW NE 8-34s-3e, four miles northwest of Arkansas City, Southwestern Cowley County, is prov-

NATIONAL BANK OF TULSA

TULSA, OKLAHOMA

Statement of Condition March 4, 1936

RESOURCES

Cash and Due from Banks	$22,391,631.20	
U. S. Government Securities	13,180,603.94	
Other Bonds and Warrants	3,351,568.42	
		38,923,803.56
Loans and Discounts		14,919,733.94
Overdrafts		5,441.76
Income Receivable Accrued		145,632.43
Stock in Federal Reserve Bank		240,000.00
Investment in Bank Premises		2,206,000.00
Customers' Liability under Acceptances		8,486.25
TOTAL		$56,449,097.94

LIABILITIES

Deposits		$47,934,982.57
Acceptances Executed		8,486.25
Income Collected not Earned		60,832.85
Interest, Taxes, etc., Accrued		70,976.06
Capital—Preferred	$4,000,000.00	
Capital—Common	2,000,000.00	
Surplus	2,000,000.00	
Undivided Profits and Reserves	373,820.21	
		8,373,820.21
TOTAL		$56,449,097.94

COMPARATIVE DEPOSITS

March 5, 1934	$33,614,690.49
March 4, 1935	39,117,599.41
March 4, 1936	47,934,982.57

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

The Oil Bank of America

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
Torry & Feaster et al, Kimpler 1, se ne ne 31-18s-11w	*	3433
Continental, Risse 2, sw sw se 36-19s-11w	1919	3289
Gulf Oil Corp., Steckel 7, nw ne ne 1-20s-11w	1307	3292
BUTLER COUNTY—		
Phillips Pet., Scully 15, se sw sw ne 17-23s-4e (pb 2039)	312	2045
El Dorado Ref., Houston 1, nw sw ne sw 6-25s-4e	61	2675
Western Kansas O&R Co., Lucas 1, ne ne se 10-28s-6e	*	3052
COWLEY COUNTY—		
Lloyd, Frost & Study, Weathered 2, se sw se 28-31s-3e	1625	3335
Roth & Faurot, Sherwood 1, ne nw sw 11-31s-4e	215	3031
Ault et al, Crotsley 1, se sw nw 18-32s-5e	lcn.	abd.
Alma Pet., Finch 2, se sw ne 7-35s-3e	90	3502
ELLIS COUNTY—		
Gulf Oil Corp., Swires 1, se se sw 8-15s-18w	976	3294
ELLSWORTH COUNTY—		
Carter Oil et al, Teubner 4, cnw 26-17s-9w	1072	3176
GREENWOOD COUNTY—		
Henry Rockwall et al, Kulander 1, nw nw ne 33-23s-13e (otd 1050)	*	1688
Sharpless et al, Cook 1, nw nw nw 15-24s-10e	lcn.	abd.
McGinnis, Scott 1-A, se ne nw 18-24s-12e	*	1850
HARVEY COUNTY—		
Sinclair Prairie, Ediger 5, sw se sw 19-22s-3w (otd 3525)	321	3578
PRATT COUNTY—		
Lario O&G et al, Lemon 1, se se nw 12-29s-13w	*	4728
RENO COUNTY—		
The Texas Co., Collins 2, ne ne nw 17-24s-4w	288	3380
Olson & Shell, Region 2, csw se 24-23s-4w	201	3374
Roberts 6, cne nw 25-23s-4w (pb 3350)	42	3641
Phillips & Vickers, McElwain 1, cnw se 10-24s-4w	150	3398
RICE COUNTY—		
Bradley Oil, Wendell 3, sw se ne 32-19s-10w	1308	3313
Herndon Drlg., Smith 1, ne nw se 16-20s-9w	1368	3260
RUSSELL COUNTY—		
Stearns & Streeter et al, Miller 2, nw ne nw 31-14s-13w	1334	2963
Hartman & Blair, Boxberger "B" 1, ne se sw 5-14s-14w	*	3342
Bridgeport Machine, Witt 8, sw nw sw 3-14s-15w	800	3110
Central Pet., Foster "B" 1, sw sw ne 3-14s-15w	349	3132
Witt 2, se sw se 3-14s-15w	631	3275
Sothern Oil, Rosa Berry 1, sw sw nw 34-15s-13w	781	3333
Darby Oil, Steinert 1, sw sw sw 25-15s-15w	462	3139
SUMNER COUNTY—		
Sinclair Prairie, Kamas 5, cn½ n½ sw 28-31s-1w	251	3698
WOODSON COUNTY—		
Schaeffer & Howell et al, Haas 1, se se se 22-23s-14e	20	1621

*Failures; †Junked; ¶Million cu. ft. gas.

ing the area between the Baird and Martin pools. Topping Bartlesville sand at 3282 feet, operators drilled to 3303 feet, the present total depth, where the test was shut in for erection of tankage. The showing indicated commercial production.

To the northwest in Sedgwick County, D. M. Lauck and Shore Line Petroleum Company's M. O. Wolf 1, SE SW NE 6-28s-1w, topped Mississippi chat at 3365 feet, was drilled to 3368 feet and the crew started underreaming to set 8-inch casing at the present total depth before drilling ahead. It is a north offset to the only producer in the Schulte pool which produces from Wilcox sand at 3652 to 3653 feet.

Harper County

Marathon Oil Company's Zeller 1, C SW NW 17-35s-8w, near Waldron and only slightly over a half-mile north of the Kansas-Oklahoma line, topped Viola lime at 5247 feet, Wilcox sand at 3520 feet, and cored from 3522 to 3526 feet, recovering three feet and six inches of soft white sand which had an oil odor but a briny taste. It is being cored ahead. It is on a large block, the major portion of which lies south of the boundary line in Oklahoma.

Reno County

Marathon Oil Company's Mueller 1, C SW NE 30-24s-4w, in the center of the 40 acres which offsets the discovery well in the Haven pool to the east, was drilled to 3384 feet in Mississippi chat, found a show of water and was plugged back to 3375 feet where it swabbed 93 barrels of fluid, partly water, in 16 hours and then swabbed 37 barrels of oil and water in 24 hours. Operators have decided to test the lower horizons as did the discovery well which was drilled to 3701 feet and plugged back to 3399 feet, from which depth it is producing from the chat.

Russell County

Gulf Oil Corporation gave the Sullivan pool of western Russell County its largest Oswald lime producer during the week when Ehrlich 2, SE SW NW 1-14s-15w, pumped 1567 barrels of oil in 24 hours from 3079 feet, the total depth. It was treated with 1000 gallons of acid before the test.

Revision Proposed

ACREAGE BASIS FOR YATES BEFORE COMMISSION

Austin, Texas.—The hearing on the Yates field, in which the California Company and the Marathon Oil Company were seeking readjustment of allowable, developed issues similar to those which have existed in East Texas for a long time. This hearing was held before the Texas Railroad Commission March 18. The larger companies are asking that the method of allocation in this field be adjusted in such a way as to reduce the allowables for wells on small tracts in proportion to the acreage.

The applicants complained particularly of five leases which they contend have higher allowables than should be given them.

In their plea the two companies pointed out that these tracts were not productive at the time Yates unit plan was presented in 1928, and that for this reason the advocates of this plan did not contemplate a situation similar to that which now exists.

The five small leases include the Midland Production Company Turner lease, with one of the largest wells in the field. Evidence presented at the hearing showed that this lease, with one well on two acres, has a daily allowable of 915 barrels, or 457 barrels allowable per acre per day.

This was contrasted with the California Company's Yates "B" unit "E", where 8 wells had been drilled on 100 acres. The total allowance for this lease is 442 barrels, or an average daily allowable of 4.42 barrels per acre.

Basis of Operation

The applicants explained that the system causes high allowables for small leases, through the rule which provides that full units of 100 acres receive a unit allowance, and that fractional overages attached to these units receive allowances in that proportion which the acreage within the fractional unit bears to the acreage in a full unit. When there are small fractions of units which are not in any manner joined to full units owned by the same operator, then these fractional units receive the full unit allowance.

The method of allocation in the field provides that the allowable is assigned 75 percent to the unit potential and 25 percent on the unit itself.

By readjustment of these factors, and allowing each unit or fractional unit to share in the unit allowance only in that proportion which it bears to a full unit of 100 acres, the larger concerns believe that a fairer distribution of the allowable would be effected.

Commission chairman Ernest O. Thompson examined witnesses as to the probable results which would occur if other operators in the Yates field were permitted to drill their leases to the density of the smallest tract.

J. D. Wheeler, petroleum engineer of the Marathon Oil Company, told the commission that if this policy were followed, 9500 wells would be required. He pointed out that the engineers who made recommendations as to the drilling of wells must consider not only questions of conservation, but production costs as well.

Thompson also questioned Wheeler at length as to the effect of dry holes drilled within producing units to determine whether these dry holes were used in determining the unit potential of leases. Wheeler explained that under the existing regulations it would be necessary to consider them, but an analysis of the units indicated that the only cases where this condition existed were those in which that unit on which the dry hole was drilled received only a marginal allowance.

The applicants projected into the future a comparison of the production on their leases with that of offsetting tracts in order to show what the total production would be from each of the small leases during the next 11 years, should production and allowables be maintained on the present scale. This disclosed that the Midland Turner tract would produce 2,135,000 barrels per acre, while the California Company's Reid tract would produce 40,600 barrels per acre, as shown in the appended table.

Probably the most effective illustration resulted from the tables presented comparing the five small tracts with three of the larger Yates units, as shown in accompanying table.

C. G. Condra, Stanolind Oil & Gas Company attorney, presented E. O. Buck, consulting petroleum engineer. Buck's testimony showed that had there been no proration in the early days of the field, all offset wells would have been drilled and each operator would have produced as rapidly as possible.

Under this system, Buck thought that it would have been impossible to produce from a tract more oil then was originally beneath it. He explained that the present proration system, which was installed in 1928 while Buck was in the field as geologist for the Gulf Oil Corporation did permit an operator to produce more than might lay beneath his lease, unless allowables were properly adjusted.

At the conclusion of Buck's testimony, attorneys for the owners of small tracts announced they would put on no technical testimony.

Aggregate Recoveries Per Acre of Small Tracts Based on Actual Schedule of February, 1936

	(1) Allowable Per Acre Feb. ,1936	(2) 4000 Days	(3) To 1-1-36	(4) Grand Total
Midland-Turner	457	1,828,000	307,000	2,135,000
Bryant-Turner	149	596,000	103,000	699,000
Bryant-Robertson	199	796,000	190,000	986,000
Pecos-Reed	27	108,000	14,000	122,000
Dogie-Hogan	48	192,000	6,600	198,000
California-Reid	9	36,000	4,600	40,000

(1) Daily allowable per acre of small units, according to commission order of 2-1-36.

(2) Aggregate allowable per acre on the same basis for 4000 days (i.e. about 11 years). Note: All engineers estimate flowing life of field at considerably longer than this.

(3) Recovery per acre (Pipe Line Runs) to January 1, 1936.

(4) Sum of (2) and (3)

Third for Sand Hills

THREE ORDOVICIAN TESTS NOW IN PROSPECT

WEEKLY STAFF REPORT

San Angelo, Texas.—Three new tests are in prospect for the Sand Hills field, western Crane County's triple pay area, as result of the development of flush production from the Permian lime by Humble Oil & Refining Company's J. B. Tubb 1, near C NW NW Section 11, Block B-27, P. S. L. Survey. Initial potential of 861 barrels of 36.2° gravity oil was credited to this well, the third successful completion in the Permian zone, after using 2000 gallons acid solution in porous lime at 4361-4375 feet. The well gauged 325 barrels during the first six hours, flowing through one half-inch tubing choke, after cleaning itself of acid residue and oil load.

Humble Oil & Refining Company was prepared to carry Tubb 1 to the Simpson lime member of the Ordovican series near the 6300-foot level, which has accounted for one producer on the northwest nose of the Sand Hills structure. However, the excellent saturation revealed in core taken at 4375 feet, or 1818 feet sub-sea, led to the landing of 8⅝-inch pipe at 4262 feet to try for a producer. Location has been made for Tubb 2, C SE NW Section 11, and it will likely be drilled to the deep oil horizon, using the same heavy duty rotary rig that saw service on Tubb 1.

Gulf Oil Corporation and Truett B. Cranfill, joint owners of the discovery leasehold of the area, are preparing to drill Tubb 2, C NE NE Section 12, being a west offset to the above producer. Their Tubb 1, SEc NE Section 8, uncovered first production for the Sand Hills area in October, 1930, from lime topped at 4302 feet, or 1776 feet below sea level. Production from this original well was increased from about 25 barrels to 133 barrels of 33.8° gravity oil and 1,100,000 cubic feet of gas last week when treated with 1500 gallons of acid.

Sinclair Prairie Oil Company and unit members' J. B. Tubb 1, SEc Section 3, developed a 3-barrel pumper, testing 30° gravity, after using 1000 gallons of acid in shallow broken lime encountered unexpectedly at 2962-3164 feet. Lease contract called for production prior to March 6, and the small pumper has been classed as a commercial producer. However, arrangements have been tentatively made with royalty owners to deepen the well to the 6300-foot Simpson lime horizon. Loffland Brothers et al have location in the SEc N½ Section 9 to drill for production in the 4300-foot, or Tubb pay zone, and may later deepen their Tubb 1, C NW Section 9, which has been inactive at 4510 feet since December, 1933. Deepening operations are contingent upon additional oil completions being made nearby in the Simpson lime.

Gulf Oil Corporation's W. N. Waddell et al 1, which was completed early last February pumping 70 barrels of 34.7° gravity oil daily from Simpson lime at 5980-6317 feet after plugging off heavy flow of sulphur water in Ellenberger lime at 6450 feet, has increased its yield to about 100 barrels daily. It is now flowing with the aid of flow valves.

John I. Moore et al's T. C. Barnsley 1, C SW Section 43, Block 32, P.S.L. Survey, located eight miles southeast of the above deep producer, is contracted to drill to the Ellenberger lime horizon, or 6500 feet. Late reports indicated drilling in progress below 1800 feet. Top of anhydrite was logged at 500 feet, with an elevation of 2472 feet, and first salt section at 680 feet. A number of companies paid $50 per acre cash and a like amount payable from oil production for lease protection around this projected deep test.

BACK IN LIMELIGHT

Gaines County well is making wet gas

Midland, Texas.—The Seminole geophysical prospect in Gaines County has renewed its bid to become the next important wildcat strike in the north portion of the Permian Basin by yielding a heavy flow of wet gas after exhausting small volume of water which last week was apparently removed the first test as a contender for oil production.

Water encountered at 4813-4815 feet by W. T. Walsh and Harry Adams Corporation's S. J. Averitt 1, located about 2½ miles northwest of Seminole, was exhausted by bailing, and no increase resulted from deeper drilling. Another gas producing horizon was logged at 4890 feet, and the flow increased to 12,368,000 cubic feet when the hole was deepened to 4910 feet, 1588 feet below sea level. A boulder, or cavings partially blocked the hole below the casing, and tools can not be raised more than 250 feet. Owners are attempting to remove the obstruction without parting the drilling line. Discoloration of the gas is accepted as favorable for the development of oil production when drilling is resumed.

Based on geophysical data, the Seminole structure extends over a big area. Major concerns began paying record prices for West Texas wildcat leases about one year ago in this area, and most of the trading was terminated before the above independents launched their test, which has been largely financed by dry hole funds contributed by large interests holding leases near their 80-acre drilling site.

Small Well

Deeper drilling will be resorted to by Honolulu Oil Corporation and Cascade Petroleum Company in an effort to develop flowing production from their Yoakum County wildcat on the L. P. Bennett land after scoring a minor production boost through using acid in lime topped at 5096 feet. The hole is bottomed at 5112 feet, 1555 feet below sea level. Water appeared when the hole was deepened to the latter depth, but has since been exhausted and the oil yield averaged about 25 barrels daily. The lime was treated with 2000 gallons of acid solution after landing packer on tubing at 4962 feet. Production was doubled by the injection of the acid. No gas of any consequence is present in this well, which is located 33 miles northeast of the Hobbs field, New Mexico, and 42 miles northwest of the Means field, Andrews County. Operators believe that Bennett 1 is near the edge of an oil field. One or more tests will be drilled shortly in the area regardless of the final outcome of the initial try for production.

Operations are to be started prior to April 15 by E. R. Bahan and R. R. Rhodes, Abilene partners, on a wildcat in southwestern Yoakum County and about 4 miles northwest of Plains. Location has been made on the Alice Henard tract, C SW¼ Section 367, Block D. John H. Gibson Survey. H. F. Wilcox Oil & Gas Company and Continental Oil Company made substantial acreage contributions, while majors have acquired lease spreads at $17.50 per acre.

Some Big Ones

West Texas accounted for 34 completions the past week, including 31 oil producers; a gas well and two failures. Prolific yield was recorded by wells in the Yates field and in Ward and Crane Counties. Texas Pacific Coal & Oil Company's Henry James 12, located in the Grand Falls district, Ward County, earned a potential rating of 2165 barrels after 360-quart nitro shot in sandy-lime at 2453 feet. In the Waddell field, Crane County, Gulf Oil Corporation's M. F. Henderson 4, northwest outpost location, averaged 385 barrels of 34.6 gravity oil per hour on two-hour open flow test after using 5000 gallons of acid in dolomite lime at 3550 feet. Tubing packer was landed at 3535 feet.

In the Yates field, A. R. Eppenauer et al's H. W. Compton-State 1-A, located on 4.36-acre vacancy, gauged 494 barrels hourly from lime at 1301 feet. It is on a strip 156 feet in width and extending east and west 1107 feet. The first hole was junked last January while trying to plug back from water at 1336 feet to 1329 feet after flowing 168 barrels per hour.

Wildcat Failures

Gulf Oil Corporation's E. R. Hill 1, SWc SE¼ Section 9, Block B-11, P. S. L. Survey, Winkler County wildcat, is scheduled to be abandoned after developing a flow of 300 barrels of sulphur water hourly from lime at 4160-4170 feet. First sulphur water appeared

at 4100 feet. Top of brown lime was logged at 2415 feet with an elevation of 2809 feet.

Sun Oil Company's Keystone 1, SEc Section 3, Block 77, P. S. L. Survey, wildcat located between the Keystone and Scarborough fields, failed to yield oil or gas with mud when formation tester was used at 3450 feet. Oil saturation was present in cores taken at 3400-11 feet and at 3418-20 feet. This wildcat occupies a low structural position, having topped brown lime market at 2533 feet, with an elevation of 2959 feet. Illinois Oil Company, Dallas, is starting its initial test in the southeast section of the Scarborough field. Location is in NWc of 80-acre lease farmed out by Skelly Oil Company in Section 2, Block 77, P.S.L. Survey.

Southern Oil Corporation, Dallas, is starting a wildcat in eastern Howard County in an area that has given promise of yielding oil production through previous tests. Location is on the W. P. Edwards tract, SWc Section 32, Block 30, T&P Ry. Survey, T-1-S. Owen M. Murray, Dallas, and associates' J. P. Davis-Magnolia 4, which logged about 300 feet of saturated lime section in drilling to 2825 feet, is showing for one of the largest producers in the Denman field. The well gauged 450 barrels of oil in five hours after 900-quart nitro shot at 2452-2825 feet.

PERMITS IN UPSWING

Austin, Texas.—Permits for the drilling of 373 new wells in Texas were approved by the Railroad Commission last week, 161 more than were allowed the week before.

The East Texas field again led with 78 new permits. There were 44 in Gregg County, 27 in Rusk County, 4 in Upshur County and 3 in Smith County.

The Gulf Coast area also showed increased activity with 70 new permits. This included 30 in the new Amelia area in Jefferson County and 15 in Nueces County.

Southwest Texas reported 74 new locations with 40 in Duval County and 10 in Webb County.

East Central Texas listed 24 permits with 11 in Cooke County. West Central Texas reported 11 scattered locations.

The North Texas District operators filed 74 permits with 20 in Archer County, 17 in Young County and 15 in Wichita County.

TO USE ROTARY RIG

Fort Worth, Texas.—Rotary rig will be used by Seaboard Oil Corporation, Dallas, on its second test to be drilled on 11,000-acre block in Hamilton County in order to negotiate the prolific gas horizon found by the discovery well for the county in Marble Falls limestone at 2369-2455 feet. The company is seeking oil production in the Ellenberger lime zone. T. K. Rea 1, near SWc 320-acre lease, David Cook Survey No. 30, about 10 miles northwest of Hamilton, is preparing to run tubing with bottom hole choke to complete at 2455 feet, or 1073 feet sub-sea. Production is rated at 12,000,000 cubic feet daily, with approximately 50 percent of the gas pay cut off when 8⅝-inch casing was landed at 2412 feet. Operations have been started on the new test, which will be located on the Julia Dawson 640-acre unit, being 1000 feet out of the southwest corner of BBB&C Ry. Survey No. 41, or 3500 feet north by east of the gasser.

NORTH TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
Barney Cockburn et al's Brezina 1, blk 4	*	1432
Consolidated Oil Co.-Deep Oil Dev. Co.'s Wilson 2, sec 76	1200	2237
Fain-McGaha Oil Corp.'s Morrison 1-B, sec 1576	*	1374
Fraser & Proctor's J. A. Harris 1, sec 67	*	1025
Harry Hines et al's Cullum-Jones 1, sec 18	*	1742
Huggins Oil Co.'s Ford 10	15	1004
W. T. Hutcheson, Jr.'s McCrory 1-B, sec 120	*	2292
Perkins-Cullum Oil Co., Abercrombie 21, blk 157	*	1252
Shappell Oil Co.'s McCrory 1, sec 121	*	629
BAYLOR COUNTY—		
Consolidated Oil Co.'s Potwood 19-R, sec 1579	412	1371
T. F. Hunter & C. A. Everts, J. Kulhanek 1, sec 2430	*	1588
Ray & Staniforth, Portwood 41-C, sec 1574	35	1357
Portwood 42-C, sec 1574	300	1360
COOKE COUNTY—		
Anderson-Kerr Pet. Co.'s P. Gentzke 1	*	1994
Burk Royalty Co.'s L. J. Jones 1	20	1815
T. P. Frost et al, F. Rohmer 1	25	845
Hester Oil Co.'s R. W. Trew 2	237	1099
Larkin-Warr & Johnston's V. D. Randall 1	15	1607
F. W. Merrick, Inc.'s Andress 2	30	795
Knabe 24	8	797
Knabe 26	5	792
Schermerhorn Oil Corp.'s F. J. Hess 1-B	*	967
Seitz-Comegys & Seitz, Inc.'s Trew 3-A	40	1206
Sessions et al, Becker 1	*	1160
Vindicator Pet. Corp.'s Walterscheid 5	38	798
JACK COUNTY—		
Brazos River Gas Co.'s Clayton-Moore 3	6	2974
Jackson et al's C. C. Bloodworth 1	*	350
Martin Yell et al's Peterson 1, blk 2	4	366
MONTAGUE COUNTY—		
Perkins-Cullum Oil Co.'s N. J. Howard 5	22	1172
Pure Oil Co.'s J. W. Maddox 7-B	27	920
WICHITA COUNTY—		
Cullum & Alexander's S. B. Burnett 1	*	350
The Texas Co.'s Waggoner Est. 1-Q	*	2040
WILBARGER COUNTY—		
Bason Drl. Co.'s Waggoner Est. 1-A, sec 52	12	2012
Phillips Pet. Co.'s Waggoner Est. 6, sec 43	*	1936
WISE COUNTY—		
W. B. Hamilton's (was Lehman-Veihl), S. L. McNay 1	*	2003
YOUNG COUNTY—		
Sam S. Alexander & Beavers, G. B. Hamilton 2, sec 3401	165	905
G. B. Hamilton 3, sec 3401	300	901
W. F. Collins et al's E. A. Jennings 1	*	760
Duncan & Holt's Benson 2-B, sec 1391	40	913
Gorsuch Oil Co.'s O. W. Mathews 18	10	721
T. F. Hunter et al's Taack 2-B, sec 158	*	1201
B. F. McNatt et al's S. L. Montgomery 4	*	525
A. P. Nicholson et al's C. A. Brown 1	*	670
Geo. B. Ray & Staniforth, Wooten 1, sec 1976	*	2840
E. C. Reed et al's J. A. Watson 1-B, sec 1910	*	587
S. H. Simmons et al's J. E. Morrison 1	*	614
Carroll W. Snoddy et al's R. D. Webb 1, blk 2	*	782
E. C. Stovall et al, Fee 17, blk 49	*	4228
Underwood Drl. Co.-Campbell's R. Campbell 1-D, sec 1390	110	903
R. Campbell 2-D, sec 1390	*	981
J. G. Wooten et al's J. H. Horton 9, sec 1906	25	600

*Failures; †Junked; ¶Million cu. ft. gas.

TEXAS PANHANDLE
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Gulf's E. Cooper 12	625	3097
GRAY COUNTY—		
Conoco's B. F. Finley 12	629	2984
Empire G&F Co.'s L. H. Cunningham 5	707	3308
W. C. Jones et al's A. J. Culler-Shell 4	714	3305
Magnolia's J. Haggard 5	322	3295
W. J. Moran et al's J. Skidmore 2	514	3300
Ryan Consl'd Pet. Corp.'s Barrett 1	421	3297
HUTCHINSON COUNTY—		
J. E. Crosbie, Inc.'s H. W. Pitts 10	693	2963
McIlroy Oil Co.'s Starnes 1-A	325	3127
Skelly Oil Co.-Godfrey L. Cabot Co.'s W. E. Herring 2	¶15½	3161
Harry Stekoll et al's J. J. Perkins 1	401	3066
Turman Oil Co.-Plains Pet. Co.'s J. A. Whittenburg 4	668	2927
MOORE COUNTY—		
Texoma Nat'l Gas Co.'s T. Thompson 2-TH	¶38½	3365
WHEELER COUNTY—		
Danciger Oil & Ref. Inc.'s D. N. Massey 2	¶51½	2168
Skelly Oil Co.'s Johnson 13	1246	2526

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ANDREWS COUNTY (Means Field)—		
Humble, J. S. Means 7	¶5	4202
CRANE COUNTY (Wadell Field)—		
Gulf Oil Corp., Henderson 4	9240	3550
Magnolia, W. P. Edwards 4	10,482	3559
CRANE COUNTY (Sand Hills Field)—		
Humble, J. B. Tubb 1	861	4375
ECTOR COUNTY (North Cowden Field)—		
Landreth Prod. Corp., TP Land Trust 2-C	514	4253
FISHER COUNTY—		
Gen'l Crude Oil Co., Wm. Flannigan 7	400	3109
HOWARD COUNTY—		
Conoco & Group One Oil Corp., Settles 19	1333	2355
Ennisbrook Oil Corp., Rhotan 8	831	2830
Owen M. Murray et al, Davis-Magnolia 4	1238	2825
Sinclair Prairie, G. M. Dodge 31	625	2820
JONES COUNTY—		
Fortex Oil Corp.-Danciger O&R, Inc., H. Dorsey 1	*	2434
Thos. D. Humphrey, H. Dorsey 4	1276	2212
Ungren & Frazier, H. Dorsey 2-C	867	2067
PECOS COUNTY (Torborg Field) —		
H. A. Baker et al, M. A. Smith 1	154	449
Cardinal Oil Co., Tippett-Kirby 36-e	57	520
Stanolind, J. H. Tippett 14-A	99	420
PECOS COUNTY (Yates Field)—		
A. R. Eppenauer et al, State-H. W. Compton 1-A	11,856	1301
UPTON COUNTY (McCamey Field)—		
Geo. E. Farley et al, J. F. Lane 2-B	157	2306
Gulf Oil Corp., McElroy 129	902	2913
Storey-Freibele & C. C. Duffy, McClintic 8	168	3060
TP Coal & Oil Co., Lane 21-A	207	2031
TP & The Texas Co., J. F. Lane 8-E	808	2296
WARD COUNTY—		
California Co., A. B. Gordon 18	1409	2525
J. F. York 22	324	2530
Empire G&F Co., Grimes 1	152	2530
Sid Richardson Oils, Inc., Johnson-Sun 27-B	1238	2573
TP Coal & Oil Co., H. James 12	2165	2453
WINKLER COUNTY (Halley Field)—		
R. A. Westbrook et al, S. M. Halley 1	332	2924
WINKLER COUNTY (Hendrick Field)—		
Magnolia, N. R. Colby 1	187	3062
WINKLER COUNTY (Keystone Field)—		
Gulf, Keystone 11	¶3¾-632	3370
WINKLER COUNTY (Sayre Field)—		
Gulf, L. Daugherty 2	366	3000
Humble & Tide Water, Walton 1-D	482	2930
WINKLER COUNTY (Scarborough Field)—		
The Texas Co., L. Daugherty 1	21	3297
WINKLER COUNTY (Wildcat)—		
Gulf Oil Corp., E. R. Hill 1	*	4170

*Failures; †Junked; ¶Million cu. ft. gas.

Talco Play Is On

PALUXY SAND YIELDS OIL AFTER SWABBING

WEEKLY STAFF REPORT

Tyler, Texas.—An aggressive drilling program is in prospect for the Talco fault line structure in northwestern Titus County and eastern Franklin County as result of the first deep test in the area proving capable of commercial production in the Paluxy sand of the upper section of the Trinity series. A second test drilled in eastern Franklin County and about 13,500 feet southwest of the original producer developed sufficient free oil when formation tester was used on the Paluxy horizon to indicate a potential producer. More than a score of drilling permits have been obtained, or applied for by independents holding lease on small tracts within and near the town of Talco and on a direct line between the two tests. Development of small tracts and close spacing of wells to property lines threatens to equal conditions in the East Texas field.

Continuous swabbing of Housh & Thompson, Inc., R. L. Peveto et al's C. M. Carr 1, discovery well of the Talco area, indicated a daily yield of about 750 barrels of 25.8° gravity pipe line oil under this method of operation from Paluxy sand at 4190-4208 feet. Installation of pumping equipment was under way late last week. Observers predict that the well will pump about 300 barrels daily. The fluid level rises to the top of the casing within a few hours after swabbing, but very little gas is present. The crude is reported to be of paraffin base, and ranges from 70 to 86 degrees Fahrenheit.

To Test Second Well

The Talco well is the first successful completion in the Paluxy sand in East Texas. The owners were seeking production from the Lower Glen Rose member, or Rodessa producing zone, of the Trinity section when the shallower oil horizon was encountered unexpectedly early last month.

Entire output of the well will be used in supplying boiler fuel for other tests in the area.

W. C. Windsor et al's King & Hughes 1, Orlander James Survey, Franklin County, developed oil showings from a slightly higher structural position, and was scheduled to drill out cement plugs from casing set at 4146 feet late last week for a production test. Top of the oil saturated sand in the Paluxy was logged near the 4175-foot level, and drilling was halted at 4181 feet, 3817 feet below sea level. The discovery well is bottomed at a sub-sea depth of 3838 feet. A small amount of free oil with oil-cut mud appeared on drill stem test at 4108-4181 feet. Encouraged by this showing, Windsor et al ordered seven-inch pipe landed, as their lease calls for production early in April.

Humble Oil & Refining Company's Mary B. Grove 1, located on 82.9-acre lease, Ben Jones Survey, Titus County, and about 1½ miles due east of the discovery well, was drilling below 3200 feet late last week. Top of Woodbine series was logged at 2855 feet, or 2546 feet below sea level. This test cut the fault in the Pecan chalk horizon at 1605-1642 feet, while the discovery well reached the Georgetown lime formation before passing from the downthrow to the upthrow side of the fault, thus accounting for its comparatively thin section of lime. Windsor et al's test logged a full section of lime, which was topped at 3397 feet, having cut the fault between the Pecan chalk and Woodbine zones.

Surface pipe has been cemented at 257 feet on J. O'Neal, trustee, and others O. C. Lillianstern 1, center of 80-acre lease, Wm. McCann Survey, located 15,000 feet southeast of Grove 1. Jules Alford, trustee, et al's W. D. Fry 1, Isaac P. Stern Survey, located 9000 feet south of the producer, has erected derrick. Leland Fikes, Corsicana, et al have not started operations on the eight locations reported last week as having been approved by the commission for the Talco townsite area. Ned B. Morris, Jr., Palestine, et al have obtained permit to drill W. H. Hughes 1, SEc of 6½-acre lease, Talco townsite, and a second test in the northwest corner of the same tract. The latter also obtained permit to drill R. H. Harper 1, NEc of four-acre tract, C. Payne Survey, Franklin County. L. B. Culberson, Gladewater, was authorized to drill E. Unsell 1, located at center of Lot 1, Talco townsite. Numerous applications for permits to drill on single lots and fraction acre tracts in Titus County have been set for special hearing by the commission.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
Atlantic's Arnold 6 (350-ac)	1500	3725
Arnold 9 (350-ac)	1200	3694
Barbare et al, Propes 3 (15-ac)	60	3564
Chalk & A. E. Slaughter's Frederick 3-B	240	3588
H. A. Daley et al's J. P. Lanham 1 (3¾-ac)	125	3779
Humble, Glover 17 (132½-ac)	4000	3796
Plowman 41-B (228½-ac)	7600	3708
Mabee Cons'l Corp.'s Maxwell 7-B (41.11-ac)	120	3671
Marathon's Moores 31 (200-ac)	2000	3688
J. F. Merrick & Ken-Tex Oil Co.'s Cole 1 (20-ac)	4500	3869
Octo Oil Corp.'s Frederick 2-C (11¼-ac)	120	3587
Old Union Oil Co.'s Frederick 1-F (19-ac)	30	3642
Retsal Drl. Co.'s Maxwell 19 (25.8-ac)	240	3636
Maxwell 20 (25.8-ac)	240	3651
Sinclair Prairie, Mayfield 61-A (374.74-ac)	2000	3782
Sun's Mason 6 (36.46-ac)	750	3632
Texas Canadian Oil Corp.'s Kelly 2-A (20.42-ac)	2500	3682
Pace 7 (48.64-ac)	6000	3796
Tide Water's Shaw 14 (85.39-ac)	5000	3740
Harry Trentman, Jr. et al's Moore 3 (25.74-ac)	6400	3839
KILGORE AREA—		
Arcadia Ref. Co.'s Jeffery 6 (30.2-ac)	750	3766
Arkansas F. O. Co.'s Hughey-Ross 33 (220-ac)	7600	3544
E. Constantin & Co.'s Mayfield 5 22-ac)	120	3655
Gulf Oil Corp.'s Clayton 8 (50-ac)	7000	3598
Humble, Laird 16-A (100-ac)	8000	3620
Sexton 17-A (137.48-ac)	1000	3739
Hurtle Oil Co.'s Dickerson 2 (22-ac)	120	3578
Rushwold Oil Co.'s Cole 1 (30-ac)	200	3733
Russell et al's Lacy 1 (267-ac)	480	3497
Shulman et al, Kilgore Townsite 1, blk 175	1500	3504
Shell's Elder 33 (196.05-ac)	6000	3560
Sinclair Prairie's Andrews 30 (200-ac)	6800	3492
King 52-A (366.7-ac)	8500	3500
Tide Water's Bean 12 (85.6-ac)	5000	3602
Bivens 29 (202.7-ac)	5200	3645
Strong 17 (113.1-ac)	5500	3665
LONGVIEW AREA—		
Arkansas F. O. Co.'s Clemmons 5 (30.95-ac)	9000	3647
Davis 3 (30.8-ac)	6500	3592
H. B. Davis, Rec.'s Florence 2	25	3776
Gulf's Lacy-Snider 16 (107.53-ac)	2500	3520
Humble, Hughes 40 (245.6-ac)	3600	3635
L. G. & S. Oil Corp.'s McQueen 4 (94.57-ac)	750	3600
Manziel et al, Mackey 1 (15-ac)	480	3767
Mackey 2 (15-ac)	700	3749
L. E. Merritt Drl. Corp.'s Farrell 1 (20.77-ac)	*	3650
Oils, Inc.'s Sanders 17 (73.63-ac)	6600	3590
Paul F. Rutledge & C. W. Boller, P. Todd 3 (157-ac)	1500	3754
Selby O&G Co-Lewis Prod. Co.'s L. C. Ingram 10 (80-ac)	9600	3598
Simms Oil Co.-Stanolind's Flewellen 41-B (374-ac)	4000	3684
Stidham & Thrasher's Byrne 12 (50-ac)	500	3773
Sun's O'Byrne 8 (310-ac)	500	3718
Tide Water's Castleberry 19 (202-ac)	4000	3613
Sheppard 16 (114.36-ac)	8500	3660
ANDERSON COUNTY (Cayuga Field)—		
Tide Water & Seaboard Oil Corp., M. A. Davey 1 (50.18ac)	2500	4088
HENDERSON COUNTY (Cayuga Field)		
Earl P. Corley et al, C. L. Loper-Conoco 2 (84-ac)	3000	4095
VAN ZANDT COUNTY (Van Field)—		
Pure Oil Co., J. J. Murphree 6 (82½-ac)	8500	2929
A. R. Tunnell 15 (101.2-ac)	8000	2958
LAMAR COUNTY—		
Portland Oil Co. (W. A. Childs), J. M. Johnson 1	*	3014
SHELBY COUNTY—		
Tarbud Oil Co., Pickering Lbr. Co. 1, W. D. Woodfin sur	†	5418

*Failures; †Junked; ¶Million cu. ft. gas.

WILDCATTING PICKS UP

Calliham.—A revival of wildcatting through the shallow Pettus sand district of McMullen and Live Oak Counties is evidenced following the success of a number of outpost wells along the Calliham-Jacobs trend. Several new locations for wells were started during the week along with more wells getting the sand and preparing to complete.

A fair amount of trading on small tracts to include tests to this 1000-foot horizon has been recorded. At this time about a dozen rigs are running in this sector.

Deeper at Refugio

SAND AT 4900 FEET HAS SHOWING FOR PRODUCER

SOUTH TEXAS

WEEKLY STAFF REPORT

Corpus Christi.—Resumption of drilling for 4900-foot production in the Refugio field of Refugio County again seems probable with two wells apparently extending this producing zone one mile to the northeast. Several other fields in the Corpus Christi district regained interest as the result of operation announcements.

Local Oil Company's W. L. Rhea 1, NW Lot 3, Block 5, Refugio town tracts, more than one mile to the northeast of the Refugio 4900-foot area, has sand and shale at 4909-19 feet showing oil and is planning to set casing. The second well to show is D. D. Oil Company's Fannie Heard 2-A, which was abandoned as a junked hole several months ago at 4921 feet. The hole was reworked and a drill stem test at 4910-21 feet showed 100 feet of oil and considerable pressure, it was being completed as a producer at last reports. The well is 3200 feet east of production in the 4900-foot area and is in the southeastern portion of a 216-acre tract.

LaJita Corporation has commenced the first of two deep tests to be drilled on the King Ranch structure in the northwestern portion of Nueces County. One well is projected to 6000 feet, while the other is contemplated at a 7800-foot hole, or deeper, into the Jackson horizon. One well already is drilling in this district, but it is located two miles southwest of production in Jim Wells County.

This field came into prominence in 1932 when two large gassers were completed by John F. Camp and Stanolind Oil & Gas Company in sands at 3893-99 feet and 4012-32 feet. Two 6000-foot failures were drilled and last year a test just north of the field drilled to 6042 feet, plugged back to 4012 feet and perforated at 3983-89 feet, where it made a small volume of 34.2 gravity oil and a tremendous amount of gas. All were drilled by John F. Camp who will drill the two new tests for the LaJita Corporation, the first to be located 660 feet out of the northwest corner of Section 24 and one mile southwest of production. It will set 13-inch casing at 550 feet, 9⅝-inch casing below 6000 feet and carried ahead to the lower level. More than a mile southwest of this well, but in Jim Wells County, Texon Royalty Company and Lucey Petroleum Corporation's Coopwood and Rolsten 1, northwest corner of Section 17, is down 3000 feet.

Saxet Heights (Corpus Christi) field, also in Nueces County, was given several minor extensions in various directions. The field's heavy drilling campaign shows no sign of let up. It, however, has seen a definition to the southwest so far as the 4000-foot sand is concerned, in J. K. Culton and Republic Natural Gas Company's Baldwin 1-C, one mile southwest of production. The well was coring at 4795 feet at last reports, having showed salt water in the 4000-foot level. In the main field, Tom Graham's Whalan 1, which made a high gas/oil ratio well in the 4000-foot sand, was coring at 4660 feet to test the lower sands.

Saxet field, which has most of its development centering around the Clarkwood townsite, is being expanded to the southwest through a series of completions on offset locations.

Twin wells for the new Taft field, San Patricio County, appear probable with Esnes Oil Company (George E. Smith) staking J. L. Britton 3, 150 feet from the west line and 330 feet from the north line of the discovery tract and 183 feet west of the Britton 1. It will be drilled to the 3900-foot sand, the other well already being a producer in the 4900-foot level. Humble Oil & Refining Company is rigging up to work over J. W. Godwin, north offset to the Taft field discovery. It drilled to 6352 feet and was abandoned, but with the discovery of the 3900-foot level, casing will be set and the casing perforated for production.

Four new producers were completed in the 5600-foot sand in the Plymouth field, San Patricio County, during the week. This area remains active with the Humble Oil & Refining Company, Magnolia Petroleum Company, Sun Oil Company and Plymouth Oil Company accounting for eight operations.

Prospects are bright for some sort of producer in Continental Oil Company's Moody 2-A, Section 6, nine miles southeast of Seadrift in Calhoun County. The well drilled to 9083 feet, but after having mechanical trouble, plugged back and made a series of tests through perforations. When the tool was being removed from the hole after perforating at 7730-75 feet, the mud headed rotary table. Liner and tubing are to be set and a production test made. If completed as a producer, it will be the deepest production in the South Texas district, present deepest production being at 7500 feet in Hidalgo County.

NEW FIELD INDICATED

Live Oak wildcat still in sand section

Beeville. — Dirks Brothers' J. R. Dougherty 1, wildcat seven miles southwest of the McNeill field, Live Oak County, continues to be the foremost well of the Pettus trend. It cored a sand at 4508-14 feet, which carried some saturation, but four drill stem tests failed to develop anything. It has been cored to 4567 feet, where it still is in a sand section. This is classified as the Government Wells horizon and indicates a new field. The well will be carried ahead and likely will have an electric formation testing device run if it should not produce in the lower sands. Further testing of the upper sands is contemplated.

In the western portion of the county, R. H. Feltner has been tied up with a fishing job in Carter et al 1, which has had several interesting showings to 2962 feet, its present depth.

Over in Bee County, Marine Oil Corporation's Webb Hearn 1 (formerly Church et al) is rigging up to work over. This well is bottomed at 5935 feet in the Conroe sand where it is showing salt water and a little oil and gas. It is in the Beeville area, where one well has shown considerable gas and some oil spray from the same level. Same company will rework the discovery well, the Wood 1, in an effort to increase the oil flow.

Some work is still progressing in the Dirks, West Tuleta fields of Bee County, and the North Pettus field of Goliad County, although it has settled down to about one-half dozen rigs for the group.

DEEPEST VALLEY TEST

Willacy County well to seek 9200-foot level

Mission.—Staking of a location for a 9200-foot test, the deepest ever drilled in that territory, was one of the key happenings in the Rio Grande valley during the week just closed. Samfordyce field was given a one quarter-mile west extension and a 4000-foot east extension to the deep Mercedes field, was still in process of completion. A new shallow field for Hidalgo County also appeared possible.

Shell Petroleum Corporation's Yturria Land and Cattle Company 1, Willacy County, in the Salt Lakes district, is preparing to move in a 136-foot steel derrick and erect a 20-foot substructure for a 9200-foot test. Sun Oil Company, The California Company and several others are directly interested in the drilling of this test. Its location is 990 feet from the most southerly southeast corner of Share 64.

Sun Oil Company's Chapotala Land Company 1, Porcion 99, Starr County, approximately one quarter-mile west of production in the Samfordyce field, gauged 9 barrels of oil per hour through 1.4-inch tubing choke and showed 150 pounds working pressure from sand at 2814-16 feet, casing set at 2810 feet. Its closed in pressure on the casing is 330 feet. This well leads to further drilling in the western side of this field. There have been 132 oil producers completed in the field to date.

H. K. Maxwell et al's Hidalgo Water and Improvement Company 2, Lot 11, Section 20, Alamo Land & Sugar Company subdivision, four miles south of Alamo, gives promise of shallow production for Hidalgo County. The well ran electric formation testing device which showed a sand at 636-60 feet, indicating gas to 652 feet and oil at 652-60 feet. Cas-

ing has been set at 680 feet and will be perforated for production.

Union Sulphur Company encountered trouble in completing American et al 7, located 4000 feet east of the Mercedes field. It is bottomed at 7608 feet where it is showing for a producer. The well has been killed, the liner and screen are being pulled and will be reset if their condition warrants. Same company is drilling below 7460 feet in American 8, located north of production.

Quintana Petroleum Corporation's J. C. Engleman 1, highly interesting wildcat in the Mestenas grant, Hidalgo County, is coring below 5465 feet.

Dick Young's Singer 1, Section 312, Brooks County, on the Alta Verde salt dome, has been making heads of 21.5 gravity oil estimated at 35 barrels per day. Efforts are being made to induce a steady flow. The sand is reported at 915½-19 feet, although some report it as having been deepened to 928 feet and still in sand.

NORTH EXTENSION

Seven Sisters well is mile from production

Laredo.—An extension of one mile to the north was being provided to the Seven Sisters field of Duval County late in the week to be the principal happening in the Mirando district. The other fields were carrying on the same heavy drilling campaign, although no major expansions to the producing areas were noted.

Humble Oil & Refining Company's L. & P. T. Wright 2, 990 feet from the west line and 330 feet from the south line of Section 118, one mile north of the Seven Sisters field, was swabbing at 2530 feet and showing oil. It is in the Government Wells sand at 2522-30 feet. At last reports, the fluid level was about 1000 feet from the top of the hole, but would not kick in with a flow.

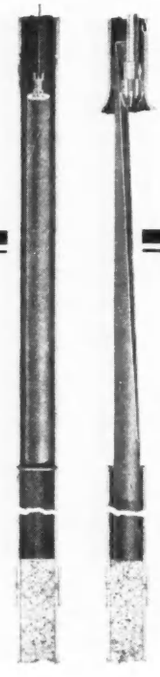
Wildcatting through the Mirando trend has shown a slight decline, the majority of the work being close in tests to the newer fields such as Hoffman in Duval County and Lopez in Webb County.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BEE COUNTY—		
Illinois Pet. Corp., I. Hall 8, T. J. Butler sur (Dirks)	750	3907
The Texas Co., S. E. Young 21, T. J. Butler sur (Dirks)	400	3961
BEXAR COUNTY—		
J. B. Chew, F. Bonkowski 1, Wm. McMinener sur (Adkins)	*	1256
F. M. Shaver, A. W. Bitter 1, 1650 ft n of Nelson rd and 160 ft wl of tr, J. M. Baerrera sur No. 58	*	854
Trawalter & Umburn, J. Escalera 1, F. Ricardo sur No. 6 (Von Ormy)	*	957
CALDWELL COUNTY—		
E. E. Tullos, Walker Bros. 1, A. Floyd sur (Dunlap)	*	850
DUVAL COUNTY—		
Atlantic, J. F. Welder 5-C, sec 591 (Seven Sisters)	850	2491
J. F. Welder 6-C, sec 591 (Seven Sisters)	900	2501
1-D, sec 113 (Seven Sisters)	1000	2513
Bridwell Oil Co., Bishop Cattle Co. 7, sec 76 (Loma Novia)	483	2651
Bishop Cattle Co. 13, sec 76 (Loma Novia)	606	2627
Chas. Daubert et al, D. F. Kreis 1, 2600 ft nl, 2700 ft el sec 518	*	3506
Diamond Half Oil Co., R. Serna, Jr., 2, sec 384 (Seven Sisters)	100	2216
Duval Oil Co., D. Ruiz 1, sec 119 (Hoffman) PB 2705	¶15	2957
Highland Oil Co., Hubbard 17, sec 72 (Loma Novia)	400	2770
Hubbard 27, sec 72 (Loma Novia)	500	2724
Humble, M. C. Hubbard 8-A, sec 84 (Loma Novia)	265	2848
M. C. Hubbard 8-B, sec 83 (Loma Novia)	350	2765
Ruiz Est. 10, sec 553 (Loma Novia)	300	2819
R. Serna Jr., 5-A, sec 384 Seven Sisters)	450	2508
R. Serna 6-A, sec 384 (Seven Sisters)	350	2475
R. Serna Jr., 7-A, sec 384 (Seven Sisters)	450	2475
R. Serna 5-B, sec 384 (Seven Sisters)	450	2209
Marzo Oil Co., E. R. Hagist 2, sec 269 (Hagist)	*	2119
Montour Prod. Co., M. C. Hubbard 6, sec 75 (Loma Novia)	100	2666
Pan American Prod. Co., J. F. Welder 3-A, Sec 381 (Seven Sisters)	54	2445
Parr Oil Co., J. F. Welder 1, sec 383 (Seven Sisters)	500	2444
Santa Clara Oil Co., Book Ranch 1, 9085 ft sl, 3945 ft el of ranch, Santa Cruz de Concepcion gr.	*	6020
Santa Clara & Henderson, J. F. Welder 9-C, sec 381 (Seven Sisters)	500	2411
Shell, C. W. Hahl 4, sec 78, blk 10 (Loma Novia)	1100	2556
Texas Co., H. Wendt 23, sec 68 (Loma Novia)	1200	2718
Valley Osage Oil Co., Wm. Hubbard 2, sec 75 (Loma Novia)	425	2614
Westheimer & Daube, Z. Campos 5, sec 224 (Seven Sisters)	750	2222
FRIO COUNTY—		
Amerada Pet. Corp, Halff & Oppenheimer 5, S. Glenn sur No. 335 (Pearsall)	7500	5430
GOLIAD COUNTY—		
Jane Oil Co., O. A. Mudd 4, B&B sur, sec 25 (North Pettus)	250	3689
Magnolia, J. W. Porter Jr. 1, Myers sur No. 26 (North Pettus)	350	3731
JIM HOGG COUNTY—		
G. C. Rankin, Vela 1, 330 ft nl and wl blk 6, sec 5	*	3765
MILAM COUNTY—		
Minerva Ref. Co., Shelton Est. 5, W. M. Allen sur (Minerva-Rockdale)	*	1510
NUECES COUNTY—		
Circle Oil Co., Pete Whelan 1, Villareal sur (Saxet Heights)	450	4095
Conroe Dr. Co., G. W. Hatch 1, blk C, McBride sub (Saxet Heights)	350	4103
Marine Oil Co., P. C. Worley, Dincon del Oso League (Saxet Heights)	300	4082
W. A. Richardson, Meredith et al (Smith) 1, blk 4, Clarkwood townsite, Land sur No. 404 (Saxet)	350	4418
Southern Minerals, F. J. Smith 2, blk 14, Sheppard Farm Lots (Saxet)	650	4862
REFUGIO COUNTY—		
Quintana Pet. Corp., Tom O'Connor 30-A, sec 3 (Tomoconnor)	800	6029
SAN PATRICIO COUNTY—		
Plymouth Oil Co., E. H. Welder 35-C, sec 71 (Plymouth)	275	5643
E. H. Welder 36-C, sec 49 (Plymouth)	500	5504
Stanolind O&G Co., Floerke 1, 1320 ft sel, 150 ft nel lot 5, blk 17, Taft Farms	*	6511
STARR COUNTY—		
John Clopton, Kelsey Bass 2, 1850 ft swl, 2950 ft nwl of sec 377	*	760
Ralph E. Fair, Inc, Seabury et al 1-B, por 38, tr 256 (Samfordyce)	250	2800
Fech Oil Co., F. Doyno 5, blk 4, share 77-A, por 81 (Rio Grande City)	15	1453
Phillips, Garcia 3, blks 3 & 4, por 100 (Samfordyce)	*	2811
Sun Oil Co., Chapotala Land Co. 1, porcion 99 (Samfordyce)	350	2816
TRAVIS COUNTY—		
Walden Oil Co., P. C. Willis Est 1, J. Kemp sur (Manda)	*	1050
WEBB COUNTY—		
Mills Bennett, A. S. Billings 2, sec 113 (Lopez)	500	2183
A. S .Billings 7, sec 113 (Lopez)	400	2173
E. L. Valadez 2, sec 111 (Lopez)	550	2228
Cole Pet Co., R. Benavides 94, blk 2, sec 13, Cole sub, Arispe gr (Cole)	150	2953
Hunter Co., A. S. Billings 3, sec 113 (Lopez)	125	2170
Montour Prod. Co., A. Lopez 4, sec 111 (Lopez)	750	2219
G. G. Mortimer, Community 1, sec 114 (Lopez)	385	2178
WILLIAMSON COUNTY—		
Fritz Fuchs, A. Braker 1, 2150 ft swl, 1350 ft sel Mahon sur	*	1445
G. A. Ripley, L. Malmquist, 240 ft wl, 525 ft sl 105-ac tr, P. J. Wyche sur	*	1408
Taylor Ref. Co., Christianson 1, 150 ft nl and el of tr, R. B. Bissett sur	*	1635
ZAPATA COUNTY—		
J. P. Nash & Clover O&G Co., A. P. Haynes 9, blk 7, Haynes sub, Comitas & Villa gr (Comitas)	25	921
The Texas Co., Whitehead 85, C. Blanco gr (Escobas)	*	1263

*Failures; †Junked; ¶Million cu. ft. gas.



Shot going in hole to point near cut.

Ready to Sidetrack following the shot.

and another

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is rung up for Casing Shooting!

An H.&L. non-collapsible, tin tube shot (especially made for shooting off casing, usually for sidetracking) has just been made at 7240 feet on a Jefferson County, Texas, location, using a 5-inch x 5-foot torpedo with 140 sticks of 100% gelatin.

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Three Prospects Out

AMELIA EXTENSION WELL YIELDS LOW OUTPUT

WEEKLY STAFF REPORT

Houston.—Three geophysical prospects were temporarily eliminated from the ranks of potential producers in the Texas sector of the Gulf Coast last week. Performance of wells drilling at Amelia field, the district's latest find, were disappointing. These negative developments, however, were offset by announcement of locations for wildcat tests on other prospects as the ones thrown temporarily out of the picture.

Black Gold Petroleum Company found its Barrow 1, Jackson Lake prospect in Chambers County, in salt water at 8663 feet and abandoned the test. This wildcat, in Abstract 35 of the R. Barrow Survey, was reported to have encountered a non-commercial show of oil slightly below 7100 feet. It found regular Discorbis at 7342 feet, Heterostegina at 7618 feet, and Marginulina at 7887 feet.

Offsetting the Black Gold failure, Salt Dome Oil Company and Gem Oil Company started digging pits and water well for A. B. and V. Lawrence 2, Cotton Lake prospect of Chambers County centering on the S. Barrow Survey, adjacent to a block of acreage held by Tide Water Oil Company.

Anahuac Failure

Anahuac field, the major discovery in the Gulf Coast sector in 1935, although contributing only one completion the past week, had 18 new locations, indicating continued activity there for the early part of the summer. Of these, 14 were announced by Humble Oil & Refining Company, discoverer of the field, and four of the new locations were announced by Sun Oil Company. Eight rigs were active in the field March 20, in addition to some 20 locations and derricks.

Anahuac's completion last week was the third dry hole for the field, an event which may have a tendency to cause a downward revision in the ultimate recovery estimate of 300,000,000 barrels put on the reserve. The well is Humble Oil & Refining Company's J. E. Broussard 10, abandoning depth being 7988 feet, as compared with the regular production horizon of about 7080 feet in the field. It is located one-half mile south of production.

It is likely Anahuac will be more prominent in next week's completions inasmuch as three wells are nearing completion there. Two of these are Humble Oil & Refining Company projects, while the third is Sun Oil Company's White 9.

Chambers County and Galveston County figured prominently during the past week in the award of coastal land leases at Austin by the state, operators taking more than 100 leases involving 155,000 acres in the two counties. The aggregate cash consideration paid the state was $1,394,650, and oil payments totaled $26,850,000.

One at Dickinson

Dickinson field, a 1934 discovery drawing attention to the possibilities of Galveston County, completed only one well last week, Stanolind Oil & Gas Company's State 3. It was good for 536 barrels on a quarter-inch choke at 8025 feet. Six wells there are drilling below 6000 feet, and three of these are in the 8000-foot sand, indicating completion prior to March 26.

Amelia, the new field four miles west of Beaumont in Jefferson County, proved disappointing last week. In the first place, Glenn McCarthy, Inc.'s M. Longe 1, two miles north of the discovery well, yielded only 40 barrels of 49 gravity oil per day through a three-sixteenths-inch choke when gauged. The production was accompanied by 4,000,000 cubic feet of gas. Tubing pressure on the well was 2060 pounds; casing pressure 2175 pounds.

In the second place, Humble Oil & Refining Company's Hebert Broussard 1, Block 2, C. Williams Survey, and the same operator's R. C. Miller 1, Block 1 of the Garden Villas subdivision of the A. Savery Survey, both have attained significant depths. Broussard 1 at latest reports was drilling sandy shale at 7360 feet, having announced no showings of importance. Miller 1, the other active test at Amelia, reported no showing in sand at 6840 feet.

Location Staked

Cheek prospect, also in Jefferson County, will be subjected to another test on a block assembled by Magnolia Petroleum Company in the H. T. & B. R. R. Survey No. 16. Location for H. B. Funchees, Jr., No. 1 has been staked 1650 feet south and 330 feet west of the northeast corner of the survey.

Smith & McDannald's Grinnell 1, another Jefferson County wildcat, north of Port Arthur in Abstract 125 of the Grigsby Survey, was drilling in shale at 6720 feet at the close of the week and reported running low. Atlantic Oil Producing Company and Turman Oil Company are interested in the test, as they hold adjoining acreage.

In the La Belle area, south of Lovell lake in Jefferson County, Sun Oil Company is preparing to perforate Hebert & Broussard 1 at 7248 feet after having previously attempted production at depths on down to 8824 feet. Hebert & Broussard 1 is in the B. Blackmon Survey. La Belle area is an old Torsion balance prospect worked by Vacuum Oil Company in 1929. In that year Vacuum drilled a dry hole to 5673 feet.

Looks Like Producer

There is a possibility Gulf Production Company's Fairfield 1, Brazoria County wildcat on the Lochridge prospect, may usher in a new field next week. March 20 the well was shut in at 6277 feet with a pressure of 2450 pounds after it had produced considerable gas and a spray of 31 gravity oil through a three-eighths-inch choke. Separators and tanks are being erected. Two recent drill stem tests make the well's possibilities important. At 6203-17 feet a nine-minute test, with one three-eighths and one quarter-inch choke, showed gas and 15 gallons of oily mud. Another nine-minute test at 6260-74 feet, with the same choke arrangement, showed 1600 pounds pressure and 15 gallons of mud which was 10 percent oil.

Considerable interest is attached to a new location made last week by Amerada Petroleum Corporation in the Deer Park vicinity of Harris County, due to the fact that the prospect is in close proximity to a number of dry holes. Amerada will drill Mellie Esperson 1 on the south side of the Houston Ship Channel. Materials are being moved to the location. A second

TEXAS GULF COAST Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Glenn H. McCarthy, Inc., M. Longe 1	¶4-40	6118
ANAHUAC—		
Humble, J. E. Broussard 10	*	7988
BLUE RIDGE—		
Gulf, Blakely 19	*	4814
DAMON MOUND—		
Henry Wisdom, Wisdom Fee 4	10	1676
DICKINSON—		
Stanolind, State 3	536	8025
ESPERSON—		
General Crude Oil, Davis 11	*	5896
HANKAMER—		
S. Eason-Ward, A. E. Lee 1	*	2707
LOST LAKE—		
Pure Oil, W. F. Mayes 20	¶½	2396
ORCHARD—		
Gulf, Moore A-3	*	1900
PICKETT RIDGE—		
The Texas Co., Pierce Estate A-12	524	4706
RACCOON BEND—		
Humble, Austin College 6	¶1½	3245
TOMBALL—		
Humble, Hoffman 3	480	5580
VAN VLECK—		
Skelly, Cobb B-5	826	7503
F. C. Metzer 1	675	7504
CHAMBERS COUNTY—		
Black Gold Pet. Co., Barrow 1, Cheek prospect	*	8663
HARDIN COUNTY—		
Bodwen et al, Walton Hrs. 1, 4 mi n Ariola, Lancaster sur	*	1825
HARRIS COUNTY—		
A. C. Hill, Swilley A-1, Sheldon prospect, V. Blanco sur	*	7457
Swilley B-1, Sheldon prospect	*	7556
MADISON COUNTY—		
Andrews-Lawrence, J. L. Poteet 3, Lewis H. Elzey sur	*	378
SAN JACINTO COUNTY—		
Ralph Stern et al, R. B. Love Est. 1, D. McGhee sur	*	5670
WHARTON COUNTY—		
H. C. Cockburn et al, T. Connor 1, Leach prospect	*	6020

*Failures; †Junked; ¶Million cu. ft. gas.

new wildcat in which this operator is interested is the Amerada Petroleum Corporation and Stanolind Oil & Gas Company's Louis Dopsalus 1, on the Fairbanks-Satsuma prospect, W.C. R.R. Survey No. 2. This is a geophysical picture.

Sheldon prospect was one of the temporarily eliminated ones mentioned in the first paragraph of this article. Two wells, both drilled by A. C. Hill on the Swilley property, were abandoned. Swilley A-1, Victor Blanco Survey of Harris County, was dry at 7547 feet, and Swilley B-1, same survey, was dry at 7556 feet. On Swilley A-1 the Hockleyensis was found at 6860 feet, while on Swilley B-1 it was found at 6985-7015 feet. Discorbis in both wells was around 4025 feet. Vicksburg in A-1 was found at 5390 feet, while in B-1 it was almost 500 feet lower.

Crown Central Petroleum Company apparently is going to attempt a mile northward extension to Esperson field in Liberty County. It is preparing to rig up T. G. Davis 1 approximately 3400 feet east of the west line and 5500 feet north of the south line of the D. L. Kokernot Survey. In the field proper last week General Crude Oil Purchasing Company abandoned Davis 11 as a dry hole at 5896 feet.

In the same county, Atlantic Oil Producing Company and Brace will attempt 3660-foot northerly extension of the Hardin pool, having spudded Edna Hardy the latter part of the week. Hardin was discovered last year by Jack Frazier's Lynott Buffon 2, which flowed initially 25 barrels per hour from 7685 feet. Hardin is regarded as a deep seated salt dome, an opinion which makes flank development attempts attractive.

Skelly Oil Company brought about two worthwhile extensions to Van Vleck field in Matagorda County during the week by completing as commercial producers Cobb B-5 and F. C. Metzger 1. The former well, completed at 7503 feet, for 826 barrels on a quarter-inch choke, extended Van Vleck 2500 feet west. Metzger 1, completed at 7490 feet for 675 barrels through a quarter-inch choke, constituted an easterly extension of 957 feet. Both tests are producing oil slightly above 37 gravity, and both register healthy pressure conditions. Skelly's Cobb B-4 at Van Vleck is coring near the depth at which the foregoing wells were completed and should be on production within a fortnight, barring accidents. This operator's Charles Langham, in the same field, is rigging up.

Pure Oil Company's Edith Paige 1, located on the Blue Basin prospect in Wharton County, in addition to being one of the deeper interesting wildcats from the standpoint of production development, is affording wildcat operators elsewhere in the Gulf Coast informative data on preparations for coping with heaving shale. Paige 1 is shut down at 7777 feet while special mud is being mixed to condition the hole for the expected heaving shale. A drill stem test from 5760-64 feet showed oil and gas in this wildcat. The well, which contemplates production below 7777 feet, is equipped with special equipment, a heavy rig, flipper valves in the tool joints, all the latest paraphernalia for combatting heaving shale and pressure.

Another Wharton County wildcat which has held attention of coastal oil men for some months was abandoned this week when H. C. Cockburn's T. Connor 1, on the Leach prospect, Section 73, E.T. R.R. Survey, stopped drilling in salt water sand at 6020 feet. Other salt water sands found in the same hole were logged at 5295-5400 feet, 5655-80 feet, 5795-5825 feet, 5895-5945 feet, and 6012-20 feet.

Pickett Ridge field, Wharton County, accounted for one of the week's completions when The Texas Company's Pierce Estate A-12 was brought in for 524 barrels per day. The well was bottomed at 4706 feet, and had a casing pressure of 650 pounds and a tubing pressure of 560 pounds. The same operator's Marek 1 at Pickett Ridge is due for completion soon as it was drilling plugs March 20 from seven-inch casing set at 4718 feet. The Texas Company is operating five rigs in the field, practically all of which it controls.

SHOOTING IN BAY

Houston.—Salt Dome Oil Corporation and The California Company last week began geophysical work on approximately 60,000 acres in Galveston and Trinity bays, initial shots being made in the lower part of Trinity Bay. Seventeen boats, including a houseboat with quarters for 30 men, will be used in the survey, which is expected to consume about 18 months. Present headquarters for the boats is at Barbers Cut, which empties into the Houston Ship Channel.

AUTHORIZE 38

Shreveport. — Thirty-eight drilling permits were issued last week by the minerals division, Louisiana Conservation Commission. Of this number 22 were for North Louisiana divided among the following parishes: Caddo, 20, all in Rodessa; DeSoto, one, and Sabine one. The 16 in South Louisiana were divided among the following parishes: Acadia, one; Calcasieu, two; Cameron, one; Iberia, five; LaFourche, two; St. Martin, one; St. Mary, two, and St. Landry, two.

SOUTH LOUISIANA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BAY ST. ELAINE—		
The Texas Co., Bay St. Elaine 11..	*	6731
BLACK BAYOU—		
Shell, Watkins M (experimental well)	*	1388
CAILLOU ISLAND—		
The Texas Co., Caillou Isle 32.....	1027	4206
CAMERON MEADOWS—		
Burton-Sutton Oil Co., School Land 12	200	3800
Magnolia, Cameron Meadows 10....	322	3939
ENGLISH BAYOU—		
Fohs Oil Co., Castle 10.....	577	7065
GILLIS—		
The Texas Co., Nickerson Fee 8....	547	6717
Union Sulphur Co., Powell Lbr. Co. 5	710	6677
IOWA—		
Shell, Tueton 5	500	6743
PORT BARRE—		
Gulf, Sibille 1	*	6360
ROANOKE—		
Humble, Devilbiss B-3	700	8850
TEPETATE—		
Continental, C. O. Ardoin 1.....	776	8319
VINTON—		
Gulf, J. W. Gardener 10	100	3974
WILLOW LAKE—		
Magnolia, Miami Cooperation Co. 1	*	8490
TERREBONNE PARISH—		
Shell, Realty Co. 1, Houma Townsite prospect, sec 103-17s-17e....	*	10,157

*Failures; †Junked; ¶Million cu. ft. gas.

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Rodessa—Monroe—Kilgore
Greggton

DEEP WELL IS DRY

Houma townsite hole reached 10,157 feet

Lake Charles.—Shell Petroleum Corporation's Realty Company 1, a wildcat on the Houma townsite prospect, one of the five deepest wells ever drilled in Louisiana, was abandoned last week at 10,157 feet having encountered no showings of commercial importance.

Realty 1, located 2000 feet south of the east corner of triangular Section 76 in Section 103-17s-17e, Terrebonne Parish, was the second failure from efforts to find production at Houma townsite, the previous test having been drilled by Louisiana Gas & Fuel Company to 6500 feet without finding anything except a gas showing at 1500 feet. The prospect is a geophysical discovery, having been worked by Barnsdall Oil Company and Shell Petroleum Corporation in 1934 and 1935.

Prospects of commercial production at Willow Lake, centering on Section 32-12s-8w, Cameron Parish, were temporarily dimmed this past week when Magnolia Petroleum Company abandoned Miama 1 in lime at 8490 feet. The well recorded no showings. It was the first test drilled on the prospect.

Although Cameron Parish lost its most interesting wildcat last week, proven fields of the parish contributed two of the state's 10 oil well completions. Both were located in Cameron Meadows field. Magnolia Petroleum Company's Cameron Meadows 10 was good for 322 barrels at 3939 feet, and Burton Sutton Oil Company's School Lands 12 yielded 200 barrels initially when completed at 3800 feet.

Busy at Tepetate

Tepetate field, six miles northwest of Iota in Acadia Parish, is one of the busiest in the Louisiana Gulf Coast. At the close of the week there were 11 listed operations. Last week Tepetate listed one completion, Continental Oil Company's C. O. Ardoin 1, in the center of a 20-acre tract in Section 29-7s-2w. It yielded 776 barrels per day through a quarter-inch choke when perforated with 19 holes at 8307-17 feet.

Union Sulphur Company's deep test of the South Lake Charles prospect in Calcasieu Parish was forced to plug back to 750 feet last week after having drilled to 9250 feet. This well, Prairie Farm Land 2, entered a water sand at 9244 feet after having recorded resistance on an electrical test made of formation at 4555-66 feet.

The remainder of Calcasieu Parish contributed during the week five producing oil wells and one additional dry hole. The oil wells were completed at Gillis, English Bayou, Iowa and Vinton for an aggregate initial yield of 2404 barrels. Gillis field, incidentally, has four additional tests due for completion before the end of March in the 6700-foot sand.

At Jefferson Island

Jefferson Lake Oil Company's Lake Peigneur 274, Jefferson Island prospect in Iberia Parish, was given several chances to produce oil last week, but, like all previous Lake Peigneur lease efforts to develop oil production, they failed. Several negative drill stem tests were made, each being allowed 10 minutes. The tool was placed at 8477 feet, at 8462-64 feet, at 8457-59 feet, at 8452-54 feet. All of these having failed, March 20 the operators were preparing to continue with another somewhere above 8610 feet, the bottom of the hole.

Shell Petroleum Corporation's Lacassine Irrigation Company 1 on the Hayes prospect in Jefferson Davis Parish is fishing at 9802 feet, having cleaned out the hole to 6967 feet. The well, which showed a very high pressure in the formation when it blew out at 9802, will furnish Coastal Louisiana with its deepest production if it is completed as a producer below 9700 feet.

In another Jefferson Davis area, the Roanoke field, Humble Oil & Refining Company last week completed Devilbiss 3 at 8850 feet for 700 barrels daily through a quarter-inch choke. Devilbiss 3 carries a casing pressure of 500 pounds and a tubing pressure of 1000 pounds. This operator's Thomas 2 at Roanoke is due for early completion, having cemented seven-inch casing at 8667 feet on top of oil sand last week.

Tide Water Oil Company's Smede 2, St. Martinsville field, St. Martin Parish, evidently is going to make another attempt to complete in a new sand it found 660 feet south and west of the discovery well of that field. Smede 2 tried to blow out at 8700 feet when it encountered the new sand. The well plugged back, sidetracked the original hole at 8227 feet, and is drilling ahead in sticky shale at 8451 feet.

The Texas Company, which last week completed Caillou Island 32 at Caillou Island, Terrebonne Parish, for 1027 barrels daily at 4206 feet, soon will complete Caillou Island 35. The latter well has had three oil showings below 3870 feet. The Texas Company's Bay St. Elaine 11, Bay St. Elaine field, was abandoned this week 10 feet in salt at 6731 feet.

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Extended Northwest

CASS COUNTY WELL ADDS TO RODESSA LIMITS

WEEKLY STAFF REPORT

Shreveport. — The western limit of the Rodessa field in Cass County, Texas, was extended northwest last week when United Production Company's Jones Unit 2, Benjamin J. Murray Survey, was completed at total depth of 5985 feet flowing 73 barrels of oil per hour through half-inch tubing choke, with tubing pressure of 450 pounds and casing pressure of 250 pounds. Elevation is 207 feet. Top of the saturated oolitic lime in the Young horizon was topped at 5950 feet.

The new well is a north offset to R. W. Norton's Rives 1, John Collum Survey, and is one-fourth mile southwest of the same operator's Haywood 1, Priscilla Evans Survey, the first Rodessa oil well completed in Cass County. The new well is the best producer of the three and tends to add to the theory held by some that the best part of the Rodessa oil producing area will be in Cass County.

This well with four on the Louisiana side of the field completed last week brought the total of oil producers completed at Rodessa to 110. Each well is producing practically its full allowable of 400 barrels per day. The Texas Railroad Commission last week reduced the per well allowable on the Texas side from 500 barrels daily to 400 barrels, to conform with the per well allowable on the Louisiana side.

A good well was completed in the northeast offshoot of the field in United Gas Public Service Company's N. S. Spearman 1, Section 18-23n-15w, flowing 68 barrels per hour through half-inch tubing choke at 6035 feet. A well on the south edge of the oil producing area just inside the Louisiana line was completed by United Gas Public Service Company in Brewer 2, NW NW fractional section 29-23n-16w, flowing only 21 barrels of oil per hour through one-half inch tubing choke from 6051 feet. Tubing pressure was 1450 pounds and casing pressure 1700 pounds.

Swabbing had to be resorted to in order to complete United's Tyson 7, SE NE 11-23n-16w, on the north edge of the field. It finally came in flowing 32 barrels per hour through half-inch tubing choke at 6049 feet. The field's other new producer last week was Haynes Production Company's Tyson 3, Section 14-23n-16w, completed at 6040 feet flowing 65 barrels per hour through open two-inch tubing.

Cass County had two other tests at interesting depths last week. United Production Company's Jones Unit 1, Benjamin J. Murray Survey, one-fourth mile east of Jones Unit 2, the new producer, and a south offset to Norton's Haywood 1, logged 10 feet of Dees sand (the lowest of the three gas strata) which showed oil saturation at subsea depth of 5753-63 feet. The test is reported to have checked 12 feet higher on the anhydrite contact than did Jones Unit 2. In the same county and one and one-fourth miles west of production, American-Liberty Oil Company's Maxie 1, John Collum Survey, was coring at 5725 feet. It checked 31 feet lower than Jones Unit 2 on top the anhydrite, which Maxie 1 logged at 5065 feet.

Seven wells were ready to test on the Louisiana side of Rodessa last week. The field had forty-four drilling, fifteen rigging up and thirteen active locations, ten of which were made last week.

Several companies operating at Rodessa have their engineers studying the gas-oil ratio problem at Rodessa, with the liklihood that within a short time the Minerals Division Louisiana Conservation Commission will issue an order setting the amount of gas that will be allowed to escape unused with the production of oil wells there. One solution suggested is that companies taking gas from Rodessa be required to take the escaping gas from the Young oil horizon first, until such a time as this volume falls below their needs and then return to pulling the Hill, Gloyd and Dees gas horizons. In this way, it is claimed, possibility of extracting the gas from the upper sands would be delayed for the gas from these upper horizons would be valuable in recovering oil from the Young when the time is reached that lifting is necessary in that horizon for lifting costs at 6000 feet would be almost prohibitive.

The state of Louisiana is reaping a lucrative harvest from severance taxes at Rodessa which is eleven cents for oil of 40 gravity and above in which classification Rodessa falls.

Showing Salt Water

Only 11 wells at Rodessa are showing salt water, according to the last survey made last week. The percentage ranges from 1 to 19 percent. The wells showing water and the percentage of same are: Haynes Production Company's Otwell 1, Pitts 2, and Caldwell 3, showing 2, 5 and 13 percent respectively; Marr & Perkins' Hunter 4, 15 percent, and it is being plugged back; O'Brien Brothers' Rodessa 1, 2 percent; Pelican Oil & Gasoline Company's Sexton 1, 1 percent; United Gas Company's Gibson 1, Poole 1, Mitchell 1, and Thomas 1, showing 15, 19, 11, and 4 percent water respectively; and Vaughan Production Company's Hunter and Derryberry 1, 5 percent.

The future development in the Bienville Parish part of the North Louisiana Basin hung in the balance last week as Lide and Greer's Davis Lumber Company 1, NE SE 12-16n-5w, after logging a porous lime with a showing of gas and a gasoline odor at 5868 to 5883 feet in what probably corresponds to the Hill gas horizon at Rodessa, continued to core at 6050 feet. Contract depth is 6100 feet and if nothing better is found than the show in the Hill horizon, the hole will be plugged back and attempts made to bring in the test as a gasser.

If an oil horizon should be encountered in the next 50 feet, the stock of Bienville Parish would soar. A gas well would keep the present pace going but a failure would retard activity insofar as Glen Rose exploration is concerned.

After getting the showing in the Hill horizon this test at 5985 to 6004 feet recovered nine feet of hard lime and two feet of hard gray sand with a salty taste and three feet of lime. From 6004 to 6020 feet sandy lime and shale was logged. This sand probably corresponded to the Gloyd horizon.

Ohio Oil Company's 10,000 foot test in Cotton Valley, Webster Parish, last week was drilling lime at 6607 feet in R. L. Holloway 6, Section 23-21n-10w. In the same parish, J. P. Evans' Crichton 1, Section 35-18n-9w, with elevation of 215 feet logged base of Annona chalk at 2169 feet and tested salt water in the Blossom sand which was logged at 2436 feet. The test checked 19 feet lower on of the latter formation than did the same operator's Burson 1, Section 27-18n-9w. Later the test was shut down at 3600 feet waiting for 10-inch casing.

In Lincoln Parish, Arkansas-Louisiana Gas Company's Causey 1, Section 32-19n-2w, was drilling at 2031 feet in shale and boulders. It is a Glen Rose test.

Addition of a third oil producer in the Cheneyville (Bunkie) field, in Rapides Parish, was expected before the

NORTH LOUISIANA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CADDO PARISH (Rodessa)—		
Haynes Prod. Co., Tyson 3, 14-23n-16w	5000	6040
United Gas Pub. Serv. Co., Tyson 7, 11-23n-16w	6000	6049
N. S. Spearman 1, 18-23n-15w	10,000	6035
Brewer 2, 29-23n-16w	4000	6051
CASS COUNTY, TEXAS (Rodessa)—		
United Prod. Co., Jones Unit 2, Benj. J. Murray sur	12,000	5985
DE SOTO PARISH (Naborton)—		
Jal Dilling Co., Scales A-5, 35-13n-12w	110	2451
SABINE PARISH (Converse)—		
J. E. Doughtie, Tr., Edwards 2, 29-9n-13w	200	1640

*Failures; †Junked; ¶Million cu. ft. gas.

close of the week in Amerada Petroleum Corporation's Beasley 1, NW NW 52-1n-2e, which logged top of the Cockfield sand at 5715 feet logging four feet of sand and cementing seven-inch OD casing at 5714 feet. Total depth is 5719 feet. This test is one-fourth mile west of the nearer of the two producers. Texas Company's Weil 2, Section 53-1n-2e, recently spudded cemented 10¾-inch casing at 1704 feet. Approximately two miles north of the producers, Texas Eagle Oil Corporation's Hogan 1, Section 2-1n-2e, was drilling below 4900 feet.

A. H. Tarver's Glen Rose test on the highest part of the old shallow Zwolle field, Sabine Parish, last week was drilling lime and streaks of shale at 4644 feet. Northwest of shallow Converse field production, Sabine Parish, Laurel Petroleum Company made location for a Glen Rose test in Whitney Corporation 1, Section 8-9n-13w.

Leasing Continues

North Louisiana Basin leasing and geophysical activity continued at a comparatively high pitch last week, with Bienville, Natchitoches, Jackson and Red River Parishes getting the bulk of the "play".

In township 18 north, range 6 west, Bienville Parish, near Gibsland, on a geophysical high, Standard Oil Company of Louisiana, Magnolia Petroleum Company, Tidewater Oil Company, Sun Oil Company, Redbank Oil Company and Stanolind Oil & Gas Company continued to lease actively. Texas-Seaboard Oil Company is reported to have re-shot the block centering in Section 3-16n-6w, Bienville Parish, on which it recently abandoned McGee 1, as a salt water hole at 5905 feet, and is reported contemplating another location two miles north of the abandoned hole.

In township 20 north, range 7 west, Claiborne Parish, Arkansas-Louisiana Gas Company plans a seismic survey at an early date on a block it has centering in that area.

In Caddo Parish, in township 17 north, range 15 west, just south of Cross Lake near Shreveport, Gulf Oil Corporation has taken a geophysical option on several hundred acres. On the west edge of Shreveport in township 17 north, range 14 west, Seismic Exploration Company is doing shooting work.

With Shell Petroleum Corporation, Gulf Oil Corporation and Sun Oil Company leading in the play, much activity continued in Natchitoches and Winn Parishes. Gulf Oil Corporation ordered a geophysical shooting party of 60 men into Winn Parish last week. Several individuals paid $1.00 per acre for leases in Natchitoches Parish in townships 12 and 13 north, ranges 6, 7 and 8 west.

H. D. Conley of Coushatta has assembled a 5000-acre block in Red River Parish centering in Section 19-13n-9w, where Sterling Oil & Gas Company last summer drilled Long-Bell Lumber Company 1 to 2828 feet. In the same parish, M. A. Conley has asembled a 4000-acre block in township 14 north range 9 west, and in township 14 north range 10 west, Magnolia Petroleum Company has taken a 2200-acre block.

Magnolia Petroleum Company has taken 3250 acres of leases recently assembled north and northeast of Linden, Cass County, Texas, from E. C. Smith. The leases are located in the Cynthia Latimer, E. Frazier, Morris Ward, and adjacent surveys.

LOUISIANA GEOLOGY

A 242-page paper-covered volume on the "Geology of Cameron and Vermilion Parishes," of Louisiana, has been published by the Department of Conservation, Louisiana Geological Survey, New Orleans. The volume was prepared by the faculty of the school of geology of Louisiana State University and the staff of the research division of the Louisiana Geological Survey. The report is the result of extensive field investigations and the examination of thousands of core and bore hole samples from the two parishes by the authors. The report undoubtedly will be a great aid in the exploitation, development, and conservation of the natural resources of southwestern Louisiana. The subjects treated include the physiography of coastal southwestern Louisiana, salt domes of Cameron and Vermilion Parishes discussed separately in detail, and the various salt dome prospects of the two parishes similarly described. Included in the book is an extensive bibliography.

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THREE ABANDONED

Southern Arkansas area scene of failures

WEEKLY STAFF REPORT

El Dorado, Ark.—Three important wildcat tests in south Arkansas were abandoned last week and another in which a reported show of oil was encountered in the Ozan formation at 1980 to 1986 feet, was ready to drill plug and make production test as soon as title work is cleared. Seaboard Oil Corporation's Fee 2, NW NE 28-17-4, the third test drilled by this company on this block was abandoned when it hit granite at 2492 feet, the same formation that halted drilling in the two previous tests.

In Ouachita County two tests were abandoned. Griggsby & Aarnes' Burris 1, SW NW NE 19-15-19, in the vicinity of the old shallow Stephens field was abandoned as a dry hole at 4017 feet, and three miles southwest of the lone Nacatosh producer in the Camden area, another failure was recorded, this being W. B. Street's Rath & Cartier 1, SW SW NE 33-13-18, drilled to 2202 feet before being abandoned. This test had an oil show in the Nacatosh where the lone producer was completed, at around 1400 feet and seven-inch casing was cemented at 1398 feet. Later when the well failed to produce it was deepened. In the Blossom sand at 1991-97 feet it showed salt water. Four offsets to the discovery well at Camden T. J. Gaughan et al's M. Bragg 1, Section 25-13-18, were drilled and all were failures. Transportation Petroleum Company is arranging to abandon Cochran 1, NE SE 25-19-25, La Fayette County, after it showed salt water at 3673 feet.

In Hempstead County, F. W. Martin and M. K. D. Fitzwater's Lafferty 2, SE NW 17-14-24, reported six feet of Ozan (Blossom) sand showing oil at 1980 to 1986 feet and seven-inch OD casing was cemented. Production test scheduled last Thursday was delayed pending completion of some title work.

One new location was announced in Arkansas, Kel-Mac Land and Royalty Company's Owens 2, NW SW 26-10-16.

ARKANSAS PERMITS

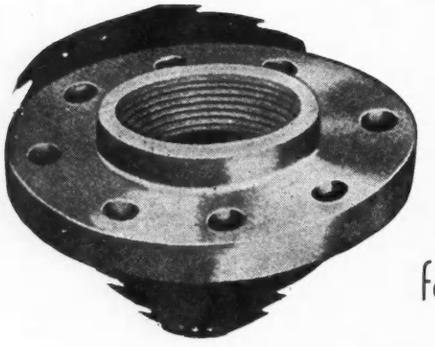
El Dorado, Ark.—One drilling permit was issued last week by the Arkansas Board of Conservation, as follows: Union County, Root Petroleum Company, El Dorado, W. B. Newton Es-Estate 1, located 330 feet south and east NWc SW SW 36-17-15. Ohio Oil Company took out permit to deepen Richard Pumphrey 4, located 330 feet south and west NEc NW 12-17-14.

ARKANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ASHLEY COUNTY—		
Seaboard Oil Corp.'s Fee 2, 28-17-4	*	2492
OUACHITA COUNTY—		
Griggsby & Aarnes, Burris 1, 19-15-19	*	4017
W. B. Street, Rath & Cartier 1, 33-13-18	*	2202
UNION COUNTY (Rainbow City)—		
Ohio Oil Co., R. Pumphrey 6, 12-17-14	810	3173

*Failures; †Junked; ¶Million cu. ft. gas.



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HOUSTON, TEXAS

STRUCTURE INDICATED

Florida test out of Eocene formation at 3066 feet

WEEKLY STAFF REPORT

Groveland, Fla.—William G. Blanchard, in charge of operations at the South Lake well being drilled by J. Ray Arnold and associates near here, released the following information here today.

"At a depth of 3066 feet we passed out of the Middle Eocene dense massive anhydrite section. This section is present throughout peninsula Florida. The best approximation that I had previously been able to make was that we would pass out of this section at from 3150 to 3170 feet, and I was, therefore, pleased to note that my calculations had been on the conservative side and that the change was reached at a point approximately 100 feet higher than the indicated depth of 3066 feet. We have additional confirmation of the fact that our South Lake Area is running structurally high.

"Realizing the importance and possibilities of the section below us we commenced coring solidly again as soon as we left the anhydrite. Below the anhydrite we have been coring through a section of many breaks and other indications of rapidly changing sedimentary conditions. Material has alternated between gray banded argillaceous limestone, gray to black calcarious shale, chalk and salt and pepper limestone. Some of the limestone has been very oolitic. As of this morning we are coring ahead slowly at 3170 feet. This section below the anhydrite zone has been carrying some gas."

ACTIVITY REVIVED

Jackson, Miss. — There has been some renewal of activity in south Mississippi and southeast Louisiana parishes adjoining the Mississippi line in recent weeks. G. W. Bilbo Company, Incorporated, is assembling leases in southwest Lamar County and southeast Marion County, Mississippi. Gulf Oil Corporation has a geophysical party working in Tangipahoa Parish. Gulf Refining Company of Louisiana has assigned to Gulf Oil Corporation 367,000 acres of Great Southern Lumber Company land in St. Helena, Livingston, Tangipahoa, St. Tammany and Washington parishes.

Willmut Oil and Gas Company, which owns and operates a gas line from the Jackson field to Hattiesburg, Mississippi, has let contract to Cleve Love to drill a gas test on an eighty acre tract in the west half of Section 8-5n-2e, east of the Jackson gas field.

Cleve Love and associates' Williams 1, SE SE 7-5n-2e, an east edge test in the Jackson field, is shut down at 2695

feet, after running an electrical tester after a reported show of oil. The results obtained in the test are being studied. Elevation is 280 feet.

In the Hinds County part of the field, an outside test, Meredith Trading Company's Harvey 1, SE NE SE 27-6n-1e, with elevation of 330 feet, is shut down after showing gas and salt water at 2486 to 2495 feet, in chalk.

J. Eugene Brown and associates are planning an early test to 4200 feet on a 30,000 acre block assembled in Nassau County, Florida, near Hilliard.

New Lea Area

WILDCAT SHOWS COMMERCIAL EXTENSION OF PRODUCTION

WEEKLY STAFF REPORT

Hobbs, N. M.—Eastern Lea County gained a new oil producing area the past week through the wildcat efforts of Barnsdall Oil Company on the D. C. Hardy permit, C SE NE 29-21s-37e, situated 5½ miles due east of nearest production in the original Eunice field and 5 miles north by west of the South Eunice area, which produces from sandy-lime zone. Hardy 1 began showing free oil in sandy-lime zone at 3717 feet, or 247 feet below sea level. Deeper drilling resulted in a hole full of oil, and at 3774 feet the well was flowing by heads, indicating a commercial producer. Owners plan to deepen to 3800 feet, then run tubing for a production test. This new strike for the east portion of the county logged base of salt at 2420 feet, or 1050 feet above sea level, with a 1297-foot interval between the base of the salt and first oil saturated zone. It is about 1½ miles northwest of Eunice.

Fourteen Locations

Fourteen new locations were authorized the past week for the Monument and Eunice fields and two semi-wildcat areas. Unexplored acreage between the former two fields was allotted a pair of tests that will likely determine if they cover a single producing area. These important projects include Gulf Oil Corporation's Reeves 1, C NW SW 29-20s-37e, and Repollo Oil Company's W. M. C. Roach 1, NWc NW NW 21-20s-37e. The latter concern also rigging up to drill E. H. Bolding 1, NWc NW NW 10-20s-37e, and J. H. Williams 2, SWc SW SE 33-19s-37e, both are west outpost locations for the Monument area. The company's Williams 1, located in northeast corner of 320-acre tract, near Monument, is installing pumping equipment with prospects favorable for a small producer after using acid twice in lime at 4153 feet, or 566 feet below sea level. However, the main oil pay was topped at 271 feet sub-sea, and water is showing in the lower section of the lime.

Late completions in the Monument field include 2 flowing producers on Amerada Petroleum Corporation's leases. State 1-M, C SE NW 2-20s-36e, gauged 739 barrels of oil in 9 hours, flowing through 1-inch tubing choke after using 2000 gallons of acid in lime at 3920 feet. Natural flow of 660 barrels in 10 hours was recorded by its J. R. Phillips 1, NEc NE NE 1-20s-36e, from lime at 3900 feet. Gulf Oil Corporation's State-Graham 1-D, C SW SE 19-19s-37e, succeeded in plugging off water encountered in drilling through the oil horizon to 4153 feet. The hole was plugged back to 3983 feet, or 326 feet below sea level, and gauged 528 barrels in 6 hours.

Gulf Oil Corporation made 2 new locations in the Monument field, including B. V. Culp 6, C NW NE 19-19s-37e, and Geo. C. Matthews 1, C NW SE 6-20s-37e. Empire Gas & Fuel Company made location for State 1-E, C NE SW 30-19s-37e. Repollo Oil Company made location for J. R. Phillips 2, SEc SE SW 31-19s-37e, and Shell Petroleum Corporation is preparing to start State 2-D, C NE SE 19-19s-37e.

Another big oil producer is assured for the southeast portion of the Monument field through preliminary gauge given Anderson-Prichard Production Corporation's H. M. Britt-Conoco 2-A-7, C NE NW 7-20s-37e. Based on 12-minute open casing test, this well flowed at rate of 500 barrels per hour from lime at 3848 feet, or 285 feet below sea level. Tubing will be run for completion gauge.

Eunice Extended

Productive limits of the Eunice field were advanced 1½ miles to the east by Gulf Oil Corporation's H. C. Collins 1, C SE NW 14-21s-36e, which produced 457 barrels natural in 18 hours through open tubing from lime at 3850 feet, of 282 feet sub-sea. This is the most important extension given the field in recent months. New locations allotted the Eunice area include Gulf Oil Corporation's State-Janda 2-B, C NE SE 32-21s-36e, and Empire Gas & Fuel Company's State 5-D, C NE NW 32-21s-36e. General Crude Oil Company and Magnolia Petroleum Company have started operations on State 2-E, offsetting their small pumper.

Repollo Oil Company is rigging up to drill R. M. Jones 1, located 990 feet out of the NWc 35-22s-36e, being a southeast diagonial offset to Gulf Oil Corporation's A. L. Christmas 1, C SE SE 27-22s-36e. The latter failed to yield oil in drilling to 4310 feet, and has been plugged back to 3625 feet to try and complete as a gasser. The Texas Company is starting a semi-wildcat near Jal townsite, having made location for W. T. Lanehart 1, C NE 29-25s-37e.

Bid for production from the Deleware sand section is likely to be made by W. L. Todd, Inc. et al's Lemon 1, C NW SW 17-21s-32e, wildcat in western Lea County. The main body of lime was missed in fulfilling contract depth at 3704 feet, where the log lists the

LEASE CHANGES

Wyoming plans more liberal to prospectors

Cheyenne, Wyo.—Recognition of the geophysical prospecting is being taken into consideration as members of the State Land Board here are contemplating the liberalization of rules to the issuance of leases on prospective Wyoming oil and gas lands. The board meets April 2 when revisions will be formally considered.

The board hopes through changes in state regulations to encourage development of Wyoming oil lands. Colorado last year liberalized her oil and gas leasing regulations and more than 3,000,000 acres of land were leased in the eastern part of the state.

Though drilling requirements will be specific in the Wyoming regulations, they will closely follow Colorado's rules. Some of the contemplated changes in Wyoming regulations are:

The licensing of a party to withdraw areas of considerable extent for a stipulated period while geophysical explorations are to be carried out, and priority right to that individual to lease lands within the area.

A lengthening of the lease term, most likely to 10 years. Heretofore Wyoming leases have been issued for one year only though in most instances the leases have always been renewed.

Liberalization of the rules to allow a party to lease more than 640 acres of land so that solid blocks embracing larger areas may be leased.

NEW MEXICO LINE

Hobbs N. M.—Construction work has been completed on Gulf Refining Company's 57½-mile 8-inch trunk line extension from Hendrick station, Winkler County, Texas, to the Monument district, Lea County, New Mexico. An 8-mile 6-inch extension to the Hobbs field and laterals to the Monument and Eunice fields are expected to be completed in ample time to permit movement of crude by April 1.

Direct route is taken by the 8-inch line from Hendrick station, C SE Section 32, Block 5, PSL Survey, to the north to Monument junction, located near center of south line of 4-20s-37e. Testing of the 8-inch unit was underway last week, using natural gas from one of Gulf Oil Corporation's New Mexico gas wells to determine the efficiency of the welders.

formation as anhydrite. No water has been encountered. Failures drilled from three to four miles to the east found sulphur water in the lime horizon. Log of the test on the Lemon permit, according to W. L. Todd, Dallas, contractor and producer, correlates closely with wells completed in the Deleware horizon in the Wheat field, Loving County, Texas. Operations have been temporarily halted to await approval of associated interests to deepen the wildcat to the Deleware, or water level.

The petroleum refining industry spends approximately $10,000,000 to $12,000,000 per year for research and development work.

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NEW MEDICINE BOW WELL HAS LESS GAS WITH OIL

ROCKY MOUNTAIN FIELDS

WEEKLY STAFF REPORT

Casper, Wyo.—Ohio Oil Company and The California Company brought in a record completion for Wyoming oil fields this week in Union Pacific 1, NE SW SW 24-21n-79w, on the Big Medicine Bow structure, Carbon County, south central Wyoming. The well is being completed in the First and Second Sundance sands and is the third completion for Big Medicine Bow, Wyoming's newest oil field.

Union Pacific 1, NE SW SW 24-21n-79w, made 175 barrels of 64 gravity crude and 2,900,000 cubic feet of gas daily from the first Sundance at 5259-5300 feet, and 165 barrels an hour and an estimated 2,000,000 cubic feet of gas daily from the second Sundance at 5381-5475 feet.

Because of the small amount of gas developed in comparison with the crude, Union Pacific 1 should give an efficient and economical production record. Hole bottoms in the second Sundance at 5475 feet.

The well is being completed in the same manner as the discovery, Kyle 1, and the second well, State 2, with production from the first sand flowing around the tubing and through the production casing, with packer set between the sands and production from the second sand coming through tubing. The 5 3/16-inch liner is cemented at 5381 feet.

Another test is being started in the Big Medicine field by Ohio Oil Company and The California Company, Union Pacific-Johnson 3, CNE SE 23-21n-79w.

In the Rock River field, Carbon County, Ohio Oil Company has a well near completion. Harrison-Cooper 3, NWc 35-20n-78w, is rigging up to go on the pump. In the first 12 hours the well swabbed 412 barrels from the lower Sundance sand logged at 3156-3228 feet.

Ohio Oil Company's Harrison Cooper 8, SW SW 35-20n-78w, Rock River, is drilling out cement with 4¾-inch liner set at 3320 feet. Total depth is at 3374 feet in the lower Sundance formation. In the same field State 1, SWc NE 34-20n-78w, deepening from the Dakota formation at 2894 feet to the Sundance, is drilling at 2950 feet.

Northern Wyoming

Another well was placed on production by Ohio Oil Company this week in the Byron field, Big Horn County, northern Wyoming. Several wells which were shut down in the northern Wyoming oil fields have again resumed drilling.

Ohio Oil Company's Charlotte Lindsay 1, CNW NE 23-56n-97w, Byron, is estimated for 400 barrels of oil daily on the pump. It will be produced from both sands, the Embar lime logged at 4890-5054 feet, and the Tensleep sand at 5054-5184 feet. In the same field the company's Robert Till 1, CSE SW 24-56n-97w, is spudding.

Yale Oil Corporation's Allen 1, SE NW SE 35-56n-98w, Garland field, Big Horn County, has recovered 1000 feet of drill pipe and is still fishing with several joints in the hole at 3818 feet.

Completion of Kinney-Coastal Oil Company's Government 3, NW NE 24-56n-98w, in the Garland field, Big Horn County, is being held up by a fishing job. Operators are fishing for swab through tubing with total depth at 4338 feet.

Stanolind Oil & Gas Company's Ridgely 26, SE NE 19-46n-98w, in the Grass Creek field, Hot Springs County, is waiting on cement to set to regain lost circulation. Hole bottoms at 3320 feet.

Eastern Wyoming

A routine week is reported for drilling operations in the Lance Creek field of Niobrara County, eastern Wyoming. Argo Oil Company is drilling at 3180 feet in Elliott 6, CSE SW 5-35n-65w, Lance Creek. Same company's Elliott 7, CNE SW 5-35n-65w, is cementing 200 feet of 13-inch casing.

Ohio Oil Company's Converse Sheep Company 5, CSE SW 32-36n-65w, is drilling at 2211 feet in the Lance Creek field. Agnes Rohlff 3, SW SE NE 32-36n-65w, is waiting on cement to set around the 10-inch casing at 192 feet.

MONTANA

Great Falls, Mont.—Santa Rita Oil & Gas Company's Tribal 6, an east offset to the company's Lander well, proved a disappointment in the Cut Bank field, Glacier County, this week, as the Sunburst sand was missing. Two wells are nearing completion in the field as four new locations were released.

Tribal 6, center of the east line of the NE SE 15-35n-6w, showed sandy shale from 2810 to 2830 ft. Well will be drilled into the Cut Bank sand. Another well in the vicinity of the Lander well is The Texas Company's Fee 5, CSW SW 14-34n-6w, which

found the Sunburst sand and will drill in with cable tools.

Cobb-Reagan's Jackson 1, NE NE NW 5-32n-5w, is nearing completion. It is drilling at 2750 feet after setting pipe at 2747 feet. R. C. Tarrant's Getty 5, CNW SW 2-34-6w, is drilling in at 2863 feet.

New locations for the week were: Neil Spencer NE SW 25-33n-6w; Santa Rita Oil & Gas Company's Barrington 1, CSW NW 24-33n-5w; Goodman Oil Company, CNW SW 24-33n-5w, rigging up; and A. E. Crumley's Tribal 1, CSW SE 31-33n-5w, building rig.

Kevin-Sunburst

Cook & Eddy's Hasket 1, SW SW SW 25-36n-2w, is rated as the best Sunburst sand well in the Kevin-Sunburst pool, Toole County, northern Montana, and proved a half-mile northward extension to the field.

After a shot of nitro-glycerine at 1500 feet the Hasket well is swabbing 5 barrels of oil hourly. It had been shut in for some time due to the cold weather. Before the shot with glycerine it made one barrel an hour.

A first report for the field and another well in the Sunburst pool is the Crumley's Shaw 8, SE NW SE 35-36-2w, spudding at 250 feet.

PANHANDLE STOCKS

Pampa, Texas.—Crude stocks in the Texas Panhandle at the close of February were estimated at 12,504,700 barrels, or 1,192,730 barrels less than the total credited to the district one year previous. Withdrawals during February amounted to 123,885 barrels, or at rate of 4272 barrels daily.

MOUNTAIN STATES

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
MONTANA		
GLACIER COUNTY (Cut Bank Field)—		
Montana Power Gas Co., Simero 1, se se 30-34n-5w	*	2767
NEW MEXICO		
LEA COUNTY (Eunice Field)—		
Amerada, H. L. Houston 3, c nw ne 7-21s-36e	1200	3895
Gulf, State-Janda 1-B, c nw se 32-21s-36e	950	3909
LEA COUNTY (South Eunice Field)—		
Skelly, J. U. Baker 1, c se sw 22-22s-37e	164	3590
LEA COUNTY (Monument Field)—		
Amerada, State 1-M, c se nw 2-20s-36e	3000	3920
J. R. Phillips 1, nec ne ne 1-20s-36e	1584	3900
Gulf, C. H. Weir 1, c ne ne 35-19s-36e	125	3978
EDDY COUNTY (Artesia Field)—		
R. D. Compton, Brainard 8, cse se 15-18s-27e	156	1258
EDDY COUNTY (Jackson Field)—		
D. & B. Oil Co., Jenkins 1, csw nw 20-17s-30e	200	3258
WYOMING		
CARBON COUNTY (Overland Dome)—		
General Petroleum Corporation, Whitford 1, sw se se 24-20n-84w	*	6400
WESTON COUNTY (Osage Field)—		
H. W. Wiltse 8, cnl nw ne 17-46n-63w	5	273

*Failures; †Junked; ¶Million cu. ft. gas.

New Maricopa Sand

WELL MAKING 725 BARRELS STARTS DRILLING CAMPAIGN

WEEKLY STAFF REPORT

Los Angeles.—Gibson Oil Company's O'Brien 1, exploratory test in Section 6-11-23, Maricopa Flats field of Kern County on a 24-hour gauge made 725 barrels a day of 23.7 gravity oil, 150 pounds on the tubing, 600 pounds casing pressure, flowing through 18/64-inch bean. It is the operator's belief that a new sand has been developed, although production has been obtained in this field for 30 years. Offset activity has already made its appearance, as several rig sites are being graded in preparation for an early drilling program.

Hogan Petroleum Company's significant completion of Peters 1, Section 5-31-29, Mountain View field, is producing 1300 barrels a day of 31.5 gravity oil through two one-inch tubing chokes. The flow pressure is 155 pounds and casing pressure 675 pounds. The hole was drilled to 6048 feet, with 8⅝-inch casing cemented at 5745 feet. The Chanac horizon was cored at 5700 feet and the Santa Margarita at 5965 feet. Both zones are being produced. This project definitely extends the southern limit of the Mountain View field and forthcoming drilling will be directed in a southern trend along the Mountain View fault.

Buffalo Oil Company completed its outside eastern test of the northwest area of the Mountain View field, Section 19-30-29, for an initial production of 400 barrels a day of 22.0 gravity oil. The well was drilled to 5117 feet in gray sand, top of the Wharton sand, 5089 feet, plugged to 5080 feet and 7-inch casing is cemented at 4812 feet. Additional activity is expected soon as a result of this completion.

Kettleman Hills

Petroleum Securities Company's Burbank 1, Section 30-23-19, Middle Dome area of the Kettleman Hills field, is being prepared to deepen. This well has been the most expensive test to be drilled in the state. Spudded January 3, 1931, it was drilled to 9332 feet and has been idle since September, 1932. The Temblor section was cored at 7563 feet, which is the same prolific horizon from which the North Dome obtains its production. In December of 1931, with the bottom of the hole at 9332 feet, plugged to 9208 feet, the well was brought in for 1400 barrels a day of 50.9 gravity oil, along with 1200 barrels a day of water and 34,000,000 cubic feet of gas. Water interfered with the successful completion and after months of remedial work, it was suspended. It is estimated that close to $500,000 has been expended on the venture, the mud bill alone approximates $150,000.

In the North Dome area of Kettleman Hills, Kettleman North Dome Association completed 43-28J for 1682 barrels a day of 34.0 gravity oil. Total depth is 8517 feet, with 6¼-inch casing cemented at 8220 feet and 314 feet of 4¾-inch liner, including 283 feet of perforations is landed at 8517 feet.

The North Belridge field of Kern County is still in doubt of its deep Eocene possibilities. Union Oil Company's Gibson 7, Section 36-27-20, is standing plugged at 9155 feet with the bottom of the hole at 9429 feet, and 4¾-inch casing is cemented at 9205 feet. On a production test, the well swabbed wet. As the plug is now up

CALIFORNIA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
INGLEWOOD—		
Standard Oil Co., Vickers One 35	415	3030
TORRANCE—		
Sterling Oil Co., Bryant 1	200	3901
MONTEBELLO—		
Standard Oil Co., Baldwin 80	75	3850
SANTA FE SPRINGS—		
General Pet. Corp., Santa Fe 44-A	130	4624
Union Oil Co., Alexander 29	465	5895
WEST COYOTE—		
Standard Oil Co., Emery 60	500	6005
SAN DIEGO COUNTY—		
San Diego Gas & Pet. Corp. No. 1	*	6332
EDISON—		
General Pet. Corp., Knapp 7	40	1576
Union Oil Co., Dougherty 4	*	2412
FRUITVALE—		
Dixie Lee Oil Co. No. 2	140	3770
Western Gulf Oil Co., K. C. L. B-18	¶6.8	3668
KERN FRONT—		
C. C. M. Oil Co., No. 56	135	2150
MIDWAY-SUNSET—		
Chief Oil Co., Francis 1	10	3100
C. J. Gibson Co., O'Brien 1	725	2816
Standard Oil Co., No. 218	505	3032
MOUNT POSO—		
General Pet. Corp., Heisen 15	350	1683
Heisen 16	285	1742
The Texas Co., Vedder 10	395	1759
MOUNTAIN VIEW—		
Buffalo Oil Co., No. 1	400	5080
Hogan Pet. Co., Peters 1	1750	6048
Sheldon Oil Corp., Ross 1	150	5130
PREMIER—		
Standard Oil Co., No. 5-9	70	2750
ROUND MOUNTAIN—		
Calif. Western Oil Co. No. 7-16	250	1580
Honolulu Oil Corp., No. 92	240	2100
KETTLEMAN HILLS—		
Standard Oil Co., No. 58-19J	1100	8705
Kettleman No. Dome Assn., No. 43-28J	1680	8517
Standard Oil Co., No. 82-70	100	8467
TRICO—		
Standard Oil Co., No. 82-7Q	100	8467
KERN FRONT—		
Republic Pet. Corp., Strassburger 9	300	2093
FRESNO COUNTY—		
Seaboard Oil Corp., Lillis-Welch 1	*	3243

*Failures; †Junked; ¶Million cu. ft. gas.

inside the 4¾-inch casing, it will be drilled out and tested in stages in an effort to localize the water entrance.

A southern extension failed to materialize as The Texas Company drilled and abandoned K. C. L. 1, at 4659 feet. It was drilled into the Santa Margarita sand at 4510 feet and was found to be predominantly gray.

Dumas-Lewis Oil Company's completion of its first well in the city of Redondo Beach for 240 barrels a day, from 3775 feet, initiates another town lot handicap, so common in southern California. During the past week various potential tests conducted on this well credits it with a maximum daily production of 500 barrels of 18.0 gravity oil. It is possible that flowing production may be obtained in more favorably located wells. A number of drill sites are being cleared of houses, garages, etc., in preparation for an intense summer campaign. Drilling will be westward, toward the ocean. Because of ordinances prohibiting new tideland prospecting, the western limit of the field will come to an abrupt stop, probably skirting northward, close to the shore, until its limits are established.

The Rosecrans field, located along the Los Angeles-Newport fault, between the Signal Hill and Inglewood fields, is to receive a new deep test experiment. Barnsdall Oil Company's O'dea 1 is being conditioned for a thorough test of the lower formations. The hole originally was drilled to 4955 feet.

Shell Oil Company's Branch 1, wildcat test in Section 34-24-10, West Pleyto district, showed nothing but water on a recent swabbing test. The fluid was lowered to 6000 feet. After being drilled to 7332 feet in the Temblor sands and shales, 7-inch casing was cemented at 7250 feet and it was this 80-foot interval that was being tested for production.

Continental Oil Company's Hobson 1, Section 15-3-24, recent discovery well of the Javon field in Ventura County, is standing recemented through perforations in the 7-inch casing at 5240 feet. The well was drilled to 5501 feet and completed March 3, for 400 barrels a day of oil. During the last few days, the water content had increased to 15.0 percent. It will be returned to production after the effectiveness of this remedial work is established. General Petroleum Corporation and Chansellor-Canfield Midway Oil Company are beginning work on two offsets to Hobson 1.

After Ten Years

BROOMFIELD-ALMA HIGH SHOWS COMMERCIALLY

MICHIGAN

WEEKLY STAFF REPORT

Mt. Pleasant, Mich.—The first indications of commercial oil production on the Broomfield-Alma "high," a structure which has been tested for 10 years without success, loomed this week when Mountain Oil & Gas Company's Walters 1, Gratiot County, 11n-2w-sw nw ne-17, bailed live oil from 3250 feet in Dundee lime. First gas was reported at 3245 feet with top of lime reported at 3223 feet.

Casing had not been set below the Marshall and on March 17, operators started to run 5-inch casing to set at about 3240 feet. The well was making a bailer of water per hour from the Traverse lime above the oil show. Operators estimated by bailing tests that the hole carried 1500 feet of oil. Traverse water was believed to be shutting off the gas and oil pay.

The oil show caused the biggest flurry in the state of the year, with lease and royalty buyers swarming into the district. Few deals, however, could be verified, although royalty acre prices were reported as high as $100 per acre a mile from the test.

Mountain Oil & Gas Company has approximately 1300 acres under lease while Shell Petroleum Corporation, Carter Oil Company, Pure Oil Company and independents already have virtually all acreage taken in a 5 section radius.

The test well is mid-way between the villages of St. Louis and Ithaca. The Ann Arbor Railroad is only three miles west of the test.

Geology on the area, computed from the records of a half dozen deep tests drilled, indicate a relatively thick section of Dundee lime ranging from 30 to 75 feet. The water level also is expected to be considerably isolated from possible pay sections.

The Broomfield "high" runs southeasterly from Mecosta County, across Isabella and Gratiot into Saginaw. The northwest part of the high, in the Sheridan-Sherman-Broomfield area has produced commercial gas from the Stray sand from 1300 to 1700 feet and has showed oil in both the Traverse and Dundee formations. Dundee test wells, abandoned as non-productive, were drilled in Section 5-11n-2w, a mile and a quarter north of the Walters test, and in Section 11-11n-3w, three miles northwest. The structure failed to produce southeast on tests drilled several miles distant from the Walters.

Lake Bed Well

Duck Lake Oil Company's Fee 1, first Michigan lake bed oil test, was brought into production on March 13, from Dundee lime, with an initial production of 400 barrels daily against 200 pounds back pressure. The test is producing from 3192 feet.

Completion of this well is expected to bring further development in the bed of Duck Lake, covering about 400 acres in Sections 10 and 11 of Crystal township (10n-5w) Montcalm County. Fee 1 is 200 feet in from the east shore of the lake. Howard Owens of Muskegon, Old Dutch Oil Company, Ladd and Knight of Detroit are the chief interest holders in Duck Lake Oil Company.

The company has taken out state drilling permits for three more tests. Two other operators, T. T. Hawksworth and Swanson Oil Company, also have made lake locations.

The lake is shallow. Regular drilling equipment with standard rig and cable tools was used with the foundation

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MICHIGAN

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
GLADWIN COUNTY—		
Smith Pet Co.'s Fruchey 2, 17n-2w, nw se sw 2	150	3830
MONTCALM COUNTY—		
Refiner Pet Co.'s Townsend 2, 12n-7w, c se nw 11	¶30	1290
Rowmor Oil Corp.'s Strait 1, 10n-5w, ne nw nw 3	300	3190
Duck Lake Oil Co.'s Fee 1, 10n-5w, fr sw 11	400	3192
Isabella Oil Co.'s Conners 1, 11n-5w, ne se ne 27	*	3240

*Failures; †Junked; ¶Million cu. ft. gas.

made of heavy piling and gravel grading from the shore. Frank Cheers was the contractor.

While far from a wildcat test, the lake bed well was at least a novelty to Michigan oil development and may be followed by equally interesting developments.

The north shore of the lake reaches the south flank of the major producing area of the Crystal field. However, six months ago Strange and Fortney Oil Company completed Lott 1, Section 11, Crystal, for 800 barrels initial in Dundee. Pure Oil Company's Steadman 1, north offset to Lott 1, initialed 30 barrels an hour. The northeast tip of Duck Lake lays directly between the Lott and Steadman wells and the south flank of the Crystal field proper. This would indicate that from 100 to 250 acres at least of the lake bed may prove commercially productive.

A dry hole was drilled on the west shore of the lake last summer and past developments indicate little interest in only the northeast portion of the lake.

State and federal governments, according to unofficial sources, informed operators last summer that neither claimed mineral rights or jurisdiction in inland lake drilling but that ownership reverted from original patents with riparian property lines extended to a converging determined lake center constituting the boundaries for lake division. Much of the south shore is owned by resorters and split into 60 and 120-foot fronts. Sportsmen are protesting drilling up of the lake claiming that it will ruin a prized duck hunting and fishing grounds of Central Michigan.

The State Conservation Department required Duck Lake Oil Company to post a special $10,000 cash bond against pollution of the lake with oil or brine before a permit was issued. The test was spudded from 3168 to 3192 feet through a section of 6-inch casing to enable pulling tools without losing oil in the event of a flowing well. No oil was reported lost.

Mechanically all drilling operations followed the accepted custom in the field with cable tools and standard rig with the exception that a half section of a 100-barrel tank was sunk into which slush was dumped and then pumped up and returned by gravity through a sluce box to a pit dug on shore.

Crystal-Ferris

T. F. Caldwell, Inc.'s Pugsley 1, 11n-5w-36, showed oil, gas and water at 3366 feet in the second Monroe lime test of the Crystal-Ferris district of Montcalm County. Operators plan to swab the hole, cased to a depth of 3355 feet, and may under-ream and reset casing if the oil show is indicative of commercial possibilities.

The oil show was picked up approximately 160 feet below the Dundee black water.

Two miles south of the Dundee productive zone of the Crystal field in 10n-5w-22, Charles Van Kuren's Evans 1, was drilled into the Upper Monroe with a light oil show. It has been shut down for several months pending acid treatment.

Particularly the oil show on the Caldwell-Puglsey will cause a renewed debate among Michigan operators regarding the productive formation in the Crystal area. Some have contended it to be Traverse lime, others Monroe, with the majority agreeing to the Dundee. Several operators insist that the oil shows on both the Pugsley and Evans were from the true Dundee.

Duck Lake Oil Company's Fee No. 1, first Michigan lake bed test, brought in for 400 barrels daily from Dunde lime. Expected to bring several lake tests in Montcalm County. Already has brought protests from interests fearing lake development will spoil waters for sportsmen. Litigation reported pending involving rights to oil in lake bed. Sluice box shown carrying back to pit on shore.

EASTERN FIELDS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
ALLEN COUNTY—		
H. F. Kelly & Co.'s Martin Bros. 1	5	....
WOOD COUNTY—		
Frank Wolf's Wolf 1	*	1317
SENECA COUNTY—		
Tiffin Industrial Gas' Hoover 2	¶	480
WYANDOT COUNTY—		
Murphy & Son's Creswell 4	*	1465
Perkins & Co.'s Nowman 2	¶	....
STARK COUNTY—		
Wiser Oil Co.'s Shaffer 1	*	....
WAYNE COUNTY—		
Ohio F G Co.'s Finley 1	¶	3038
HOLMES COUNTY—		
Ohio F G Co.'s Alexander 1	*	3457
COSHOCTON COUNTY—		
Ohio F & G Co.'s Sunday Creek 3696	*	....
C. McMillan's Van Akens 1	15	2612
PERRY COUNTY—		
Hopewell O&G Co.'s Emmerst 5	¶	3036
Ohio F G Co.'s Winggardner 1	¶	930
Thistle Oil Co.'s Stattler 10	*	1100
GUERNSEY COUNTY—		
J. L. Bebout & Co.'s Quillan 1	20	3547
SUMMITT COUNTY—		
East Ohio Gas Co.'s Wertz 2	¶	4063
PERRY COUNTY—		
Wehrle & Bailey's Beard 1	¶	2887
Perry Sturm's Vansickle 2	*	3070
HOLMES COUNTY—		
Lydic O & G Co.'s Allison 1	¶	....
JEFFERSON COUNTY—		
Fealner & Co.'s Crabbitt 1	*	....
C. S. Kelley & Co.'s Lewis 1	*	....
MEDINA COUNTY—		
Oko O & G Co.'s Essig 70	2	....
LICKING COUNTY—		
Hope C & R Co.'s Baughman 1	8	....
ATHENS COUNTY—		
Ohio F G Co.'s S.C.C. Co. 125	¶	1195
C. S. Parker & Co.'s Young 1	¶	1033
HOCKING COUNTY—		
Hope Const. & Refg.'s Dunlap 8	5	....
PERRY COUNTY—		
Ohio F G Co.'s Snider 2	*	....
STARK COUNTY—		
Wittmer Co.'s Rohr 1	*	4158
MUSKINGUM COUNTY—		
Hopewell G&F Co.'s Carroll 5	¶	4128
Mid East Gas Co's Elson 3	¶	4138
MORGAN COUNTY—		
Ohio F G Co.'s Hart 3	¶	1629
Kepple & Co.'s Van Fossen 13	*	1588
MEIGS COUNTY—		
Ohio F G Co.'s Hayes 1	*	....
Barton & Utsinger's Rodney 1	*	922
Holmes & Co.'s Bradford 1	¶	2092
WASHINGTON COUNTY—		
Turner & Co., Leasure 25	5	536
D. T. Orndorf, Roe 5	*	1531
Ridgeway & Patton, Beltz 2	5	1274
Henry Binegar, Moore 6	¶	1967
NOBLE COUNTY—		
T. & C. Rich, Hutchian 3	*	1342
MONROE COUNTY—		
Roy B. Decker & Co., Gillispie 4	*	1667
INDIANA		
KNOX COUNTY—		
Phillips Pet. Co., Bond 6	*	....
PERRY COUNTY—		
Staves Drilling Co., Harr 1	*	671
PIKE COUNTY—		
Midwest Pet. Corp., Schrolucke 5	¶	718
Dilley & Miller, Morrison 2	*	....
SPENCER COUNTY—		
Petroleum Exploration Co., Gusser 1	*	566
HUNTINGTON COUNTY—		
E. Lantz, Wiley 3	*	982
LAWRENCE COUNTY—		
J. M. & J. F. Imler, Weybright 1	¶	643
DELAWARE COUNTY—		
Fred L. Crapo, Field 1	¶	....
MARTIN COUNTY—		
Sage & Oliphant, Greenwood 2	¶	....
WEST VIRGINIA		
RITCHIE COUNTY—		
C. M. Athey & Co., Ball 3	30	....
KANAWHA COUNTY—		
G. L. Cabot, Inc., Putney 1	¶	....
GILMER COUNTY—		
E. D. Norman & Co., Collins 1	¶	1695
KENTUCKY		
McLEAN COUNTY—		
Hupp, Patton & Vickers, Crowe 1	600	....
Felix Miles, Beard 1	85	....
HENDERSON COUNTY—		
Bailey & Cox, Crowe 1	100	....

*Failures; †Junked; ¶Million cu. ft. gas.

THE OIL WEEKLY REPORT ON IMPORTANT

Wildcat Tests

ALABAMA

FRANKLIN COUNTY—McAlpine et al's Hobson et al 1, 26-8s-14w, co td 2570 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, 9-3n-29e, arr set surf cas, td 100 ft.

LAMAR COUNTY — DeSoto O&G Co.'s Gardner 1, nw nw 22-15s-16w, shot formation 3118-35 ft, co, old td 4900 ft lime.

ARKANSAS

ASHLEY COUNTY—Seaboard Oil Co.'s Fee 2, nw ne 28-17-4, dry abnd, td 2492 ft granite.

CALHOUN COUNTY—Ben Barnett's Freeman Smith 1, se nw sw 36-15-14, dk. (5000 ft test).

CRAWFORD COUNTY — Trumbo et al's Craddock 1, c nw ne 3-11-30, rur.

DALLAS COUNTY—Kel-Mac Land & Royalty Co.'s Owens 2, nw sw 26-10-16, lcn.

HEMPSTEAD COUNTY—Dixie Drlg. Co.'s Vada Wheatley 1, nw sw ne 14-11-26, spd and sd. Geo. L. Glass' May B. O'Brien 1, ne sw 32-12s-23w, ru and sd. May & Easton's Conway 1, ne sw 20-12s-27w, 12½ in csg 80 ft. F. W. Martin & M. D. K. Fitzwater's Lafferty 2, se nw 17-14-24, claim 5 ft sand (Blossom), so 1980-85 ft, 7-in csg 1980 ft, woc, td 1986 ft.

LA FAYETTE COUNTY—Erwin & Leach's Bodoaw Lbr. Co. 3, nw nw 20-16-23, elev 250 ft, dr 4402 ft lime. Earl F. Fox's Coleman 2, ne ne 30-16-24, elev 271 ft, dr 3390 ft, red beds. Joe Modisett et al's Frost Lbr. Co. 1, 29-19-24, elev 261 ft, dr 3590 ft. Transportation Pet. Co.'s Cochran 1, ne se 25-19-25, tested sw, arr abn, td 3673 ft.

MILLER COUNTY—Odell Hinson's Montana Realty Co. 1, ne nw nw 3-17-28, spd cemtd 12½ in csg 238 ft, woc. J. W. Jones et al's Bush 1, ne ne 2-19-27, mim. C. V. Lenz's Dale 6, 24-16-26, ru and sd.

OUACHITA COUNTY—Griggsby & Aarnes' Burris 1, sw nw ne 19-15-19, elev 244 ft, dry abn, td 4017 ft. Phillips Pet. Co.'s J. D. Reynolds 1, se nw 27-15-15, 13⅜in csg 619 ft, top red beds 2800 ft, sd repr rig 4400 ft. W. B. Street's Rath & Cartier 1, sw sw ne 33-13-18, dry abn 2202 ft.

UNION COUNTY—J. C. Buckbee, Tr.'s, Ezzell 1, ne nw 13-17-15, 10-in csg 400 ft, tested sw 2702-5 ft, dr 2950 ft.

CALIFORNIA

FRESNO COUNTY

MONOCLINE RIDGE — Seaboard Oil Corp.'s Lillis-Welch 1, 30-16-14, abn at 3243 ft; No. 2, 10-16-13, lcn.

COALINGA—Jas. M. Conlon Co.'s No. 1, 30-19-15, td 771 ft, dr out cement 8⅝ in at 585 ft.

CURRY MOUNTAIN—Standard Oil Co.'s No. 1, 36-21-14, lcn.

KERN COUNTY

BELRIDGE — Albert Beck's Beck-Bacon 1-35, 35-28-20, sd 1652 ft.

BUENA VISTA LAKE—Ohio Oil Co.'s No. A-6, 32-31-26, grade.

COMANCHE POINT—Shell Oil Co.'s Bank One 1, 15-32-29, sd 5394 ft. Tejon Ridge Oil Co.'s No. 1, 23-32-29, td 2182 ft, co.

DELANO—John W. Alford's Quinn 1, 14-25-27, td 2399 ft, co.

DEVIL'S DEN—Cumberland Oil Co.'s Mabry 2, 17-26-18, sd 4490 ft.

EDISON—Navy Oil Co.'s Caravel 1, 19-30-30, sd 1447 ft.

FRUITVALE—Mullane & Hall's Truesdell 1, 14-29-27, sd 2804 ft.

GRAPEVINE—Reserve Oil & Gas Co.'s No. 1, 33-11-19, td 6030 ft, to redr. Silver Gate Co.'s Tejon 1, 7-10-19, td 2985 ft, redr at 2490 ft.

LOST HILLS—Standard Oil Co.'s United 1, 2-26-20, dr hard sandy gray shale 6253 ft.

SO. MARICOPA—American Pacific Oil Co.'s No. 1, 18-10-23, foundation.

McFARLAND—Woods & Bailey's No. 1, 16-26-26, dr gray sand 3350 ft.

McKITTRICK—Belmac Dr. Co.'s Douglas 1, 22-29-21, td 4800 ft, fsh.

McVAN—Tom Bailes' No. 1, 11-27-27, rig. S. C. Brown's No. 1, 22-27-27, grade. Framac Oil Co.'s Brown 2 (was Ohio Oil Co.) 22-27-27, rur.

MIDWAY-SUNSET—Superior Oil Co.'s B. V. A. 1, 6-32-25, rur.

MOUNT POSO—Poso Pet. Co.'s No. 1, 2-27-27, lcn. Stabeck & Gardner's Glide 1, 31-27-28, sd 750 ft.

MOUNTAIN VIEW — Standard Oil Co.'s Garcia 1, 13-30-28, r td 5596 ft. Treasure Oil Co.'s No. 1, 12-30-28, ready to spud.

NO. MOUNT POSO—H. Mann's No. 2, 27-26-28, dr sandy shale 1450 ft. Santa Carla Oil Co.'s Glide 1, 7-26-28, dr gray sand 1500 ft.

SO. BUTTONWILLOW — General Pet. Corp.'s No. 1, 5-30-24, td 5871 ft, co at 5490 ft.

STEVENS—Shell Oil Co.'s K. C. L. 1, 29-30-26, dr sand and shale 6708 ft.

STRAND—Ohio Oil Co.'s K. C. L. D-1, 1-30-25, dr sand and shale 3169 ft, so&g at 2640 ft.

TERRIBELLA—KaBella Oil Co.'s Briggs 1, 12-23-27, td 887 ft, rigging cable tools.

WHEELER RIDGE—Reserve Oil & Gas Co.'s Tejon 5, 2-10-19, sd 2580 ft.

SAN LUIS OBISPO COUNTY

ARROYO GRANDE — Pismo Pet. Co.'s Scott 1, 5-32-13, rig. Birch-Royer Oil Co.'s Patchell 1, 33-31-13, sd 1625 ft.

CARRIZO PLAINS—J. C. Theriot's Holland 1, 22-32-22, dr os and shale 1905 ft.

CHOLAME—Willett Oil Assn's Jack 2, 10-25-15, sd 3647 ft.

ELKHORN—United Oil Co.'s No. 1, 2-32-21, spd Mch 12.

PASO ROBLES—Geo. Moss' Paso Robles 1, 27-26-13, rig.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*	owdd—*old well drilling deeper.*
‡—*salt water (completions).*	owpb—*old well plugging back.*
†—*junked and abandoned.*	pb—*plugged back or plugging back.*
¶—*million feet of gas.*	r—*reaming.*
abd—*abandoned.*	rog—*rig on the ground.*
bbls—*barrels.*	rur—*rigging up rotary tools.*
br—*building rig.*	rust—*rigging up standard tools.*
b.s.—*basic sediment.*	sd—*shut down.*
csg—*casing.*	sdtr—*sidetracking.*
co—*cleaning out.*	sg—*show gas.*
dd—*drilling deeper.*	si—*shut in.*
dk—*derrick.*	so—*show oil.*
dr—*drilling.*	so & g—*show oil and gas.*
fsg.—*fishing.*	spd—*spudding.*
ft—*feet.*	sr—*straight reaming.*
hfw—*hole full of water.*	sw—*salt water.*
in—*inches.*	td—*total depth.*
lcn—*location.*	ur—*underreaming.*
m—*milling.*	wih—*water in the hole.*
mim—*moving in materials.*	wo—*workover.*
mit—*moving in tools.*	wocs—*waiting on cement to set.*
mot—*milling on tools.*	wosr—*waiting on standard rig.*
n, s, e, w—*north, south, east, west.*	
oih—*oil in hole.*	

MISCELLANEOUS

HUMBOLDT COUNTY—The Texas Co.'s Eureka 2, 22-3-1, dr shale 1148 ft.

KINGS COUNTY — Associated Oil Co.'s Avenal 1, 25-23-17, lcn. Royalty Service Corp.'s No. 1, 16-24-18, dr hard sand streaks shale so&g. Commonwealth Consol. Gas Co.'s No. 2, 21-22-20, sd 2460 ft. Hancock-Union Oil Co.'s Giannini 1, 28-22-20, dr shale and sand 3512 ft. Kettleman View Oil & Gas Corp.'s No. 1, 29-22-19, sd 1620 ft.

MERCED COUNTY—J. R. Murrell's No. 1, 8-10-9, dr shale and sand 1600 ft.

SAN JOAQUIN COUNTY—Amerada Pet. Corp.'s F. D. L. 5, 15-2-5, td 4149 ft, co. Standard Oil Co.'s McDonald 1, 25-2-4, rur.

TEHAMA COUNTY — Northern Counties Pet. Co.'s Ewers-Mooney 1, 25-24-3, dr hard sand 7009 ft.

TULARE COUNTY—Kenwood Pet. Corp.'s Kenwood 1, 14-24-27, sd 1595 ft.

MONTEREY COUNTY — Shell Oil Co.'s Branch 1, 34-24-10, td 7332 ft, swabbed to 6000 ft, mostly water, co.

SANTA BARBARA COUNTY

CARPENTERIA—Santa Barbara Oil & Gas Co.'s Bryce 1, 29-4-25, td 3000 ft, plug at 1950 ft.

LOMPOC—M. J. Freeman's La Brea 1, 11-7-33, sd 1450 ft. Lompoc Pet. Co.'s Beauterbaugh 2, 18-7-34, sd 3940 ft. York Oil Co.'s No. 3, 33-8-34, grade.

ORELLA—Williams & Brown's No. 1, 34-5-31, rig.

POINT CONCEPTION — Union Oil Co.'s Sudden 1, 10-5-35, rur.

SANTA MARIA—Union Oil Co.'s Adams 1, 24-10-34, dr shale 1750 ft.

SUMMERLAND—Marmonte Oil Co.'s No. 1, 16-4-26, sd 1600 ft.

VENTURA COUNTY

BARDSDALE—Bestco Pet. Co.'s Frey 1, 2-3-19, spud Mch. 11. Duke Oil Corp.'n No. 1, 7-3-19, dr sand streaks shale 2350 ft. El Rancho Oil Co.'s Elkins 1, 9-3-19, dr gray sand fair cut 3840 ft. Laing & Jacobs' No. 1, sd 1225 ft.

JAVON—C. C. M. Oil Co.'s No. A-4, lcn. Continental Oil Co.'s Hobson 1, 15-3-24, td 5501 ft, water increased to 13 percent, recemented through perforations at 5240 ft. General Pet. Corp.'s Fee 2, lcn.

OJAI—Continental Oil Co.'s Pirie 2, 12-4-23, making 5 bbls oil and 30 bbls water, td 1017 ft.

OXNARD—General Pet. Corp.'s McGrath 2, 26-2-23, td 1996 ft, wocs 13⅜ in at 1996 ft.

PIRU—Argood & Johnson's Camulos 1, 21-4-18, rur. Bolsa Chica Oil Corp.'s Snow 3, 4-4-18, td 645 ft, stuck 13⅜ in trying to pull.

SANTA PAULA — High Mesa Oil Co.'s Butcher 1, 16-4-22, sd 650 ft. Rennie Bros. No. 1, 21-4-21, td 450 ft, to resume dr.

SHIELLS CANYON — Bankline Oil Co.'s Calumet B-1, 3-3-19, td 3724 ft in os and shale to retest 8⅝ in at 3553 ft. Petroleum Securities Co.'s Home Ro. 1, 3-3-19, foundations. The Texas Co.'s Shiells 129, 4-3-19, dr shale 3042 ft.

SIMI—Dawson Oil Co.'s No. 1, 8-2-17, dr hard sand 2774 ft. Jas. S. Hull's No. 1, 2-2-18, td 1490 ft, wocs 8⅝ in at 500 ft. Paloma Oil Co.'s Paloma Marr 1, 12-2-18, sd 2806 ft.

SO. MOUNTAIN—Calco Pet. Corp.'s Calco 3, 17-3-20, td 2606 ft, rigging cable tools.

TORREY CANYON — A. N. Macrate's Torrey 1, 32-4-18, sd 4093 ft.

VENTURA—Ventura Explor. Co.'s Sexton 1, 30-3-22, sd 7068 ft.

SOUTHERN CALIFORNIA

ARTESIA—Davis & Lewis No. 1, 25-3-12, rig. Engler & Long's Millard 1, 25-3-12, td 5888 ft, trying to locate water.

CARBON CANYON—Tehama Pet. Corp.'s Kramer 1, 33-2-8, sd 3053 ft, to drop from report.

DOMINGUEZ—West American Oil Co.'s Del Amo 1, 3-4-13, dr sand and shale 7037 ft, seeking Miocene contact.

EL NIDO—Shell Oil Co.'s McKenna 1, 33-3-14, dr shale streaks gray sand 5370 ft.

EL SEGUNDO—L. J. Martins Woods 1, 7-2-14, dr shale 6574 ft.

HUNTINGTON BEACH—20th Century Oil Co.'s Calnan 1, 36-5-11, td 5160 ft, plug 4500 ft to test.

KRAEMER—Leaseholders Dev. Co.'s Vejar 1, 26-3-9, sd 4110 ft. Standard Oil Co.'s Yorba Com. 1, 36-3-9, td 2714 ft, plug 2656 ft, to test on pump.

LAWNDALE—Sovereign Oil Corp.'s Ben Long 1, 22-3-14, td 8766 ft, co, trying to get into old hole.

NEWHALL—Yant Pet. Corp.'s No. 5, 1-3-16, dr os 1715 ft; No. 6, setting boilers.

NEWPORT—Commander Oil Co.'s Mesa 1, 29-6-10, td 650 ft, co.

NO. LONG BEACH—Geo. L. Clayton's No. 1, 31-3-12, td 6765 ft, plug 4600 ft, perforated and bailing water.

PICO CANYON—N. M. Fraser's No. 1, 31-4-16, sd 955 ft.

PLACENTIA—Placentia Dev. Co.'s Verde 1, 35-3-9, td 4250 ft, rig up to redr.

PUENTE—Chas. R. Butler's Butler 1, 14-2-10, dr shale 3790 ft, sg.

TOPANGA CANYON—Monarch Pet. Co.'s Sylvia Park 1, 5-1-16, td 650 ft, co.

TORRANCE—Eyer Pet. Corp.'s No. 1, 20-4-13, td 3794 ft, to set 8⅝ in. Oliver McDowell's No. 1, 35-3-14, sd 4633 ft.

VENICE—Eastern Oil Co.'s Del Rey Land Co. 1, 22-2-15, dr shale and sand 6077 ft.

WEST LONG BEACH — Shell Oil Co.'s Amebco 1, 13-4-13, td 6035 ft, recovered part of dr pipe, plug 5182 ft, to redr.

WESTMINISTER—Hillman Long's Westminister 1, 14-5-11, dr shale 3459 ft.

WILMINGTON—Sovereign Oil Co.'s Banning 1, 28-4-13, rig.

YORBA LINDA — Continental Oil Co.'s Carlton Com. 1, 21-3-9, dr hard sand 3054 ft.

RIVERSIDE COUNTY—Albert Pet. Co.'s Watt 2, 23-7-3, td 2787 ft, plug 2200 ft, wet, sd. Fred E. Stevens' Everett 1, 27-3-7, ready to spud.

SAN BERNARDINO COUNTY—Equitable Pet. Expor. Co.'s No. 1, 11-10-5, td 2160 ft, deepening in sand 2160 ft.

COLORADO

ADAMS COUNTY—Hills Dome Oil Lease Hills 1, csl se se 27-3s-64w, sd 4145 ft after cementing caves.

BOULDER COUNTY—Leslie R. Steele et al Maxwell 1, sw ne nw 24-1n-71w, made 2 bbls oil.

LINCOLN COUNTY—Consolidated Smelting and Metals Corporation, Hancock 1, ne sw 7-17s-52w, dr 1780 ft.

MORGAN COUNTY—Swisher et al Lunt 1, sw sw sw 3-5n-60w, dr 1300 ft.

PARK COUNTY—South Park Oil Co. State 1, se se sw 16-11s-17w, ur 6¼ in csg to set on bottom at 4000 ft.

PROWERS COUNTY—Trojan Oil & Gas Co., Lotus 1, nw ne ne 15-23s-46w, abnd 5913 ft.

FLORIDA

JACKSON COUNTY—Mrs. Mamie Hammonds et al's Grandberry 1, sw ne 15-5n-9w, sd 200 ft.

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 1, se se 17-24s-25e, elev 120 ft, dr 3030 ft massive anhydrite. Union Oil & Ref. Co.'s Gulf Expl. Co. 1, se sw 17-24s-25e, 15½ in surf csg 65 ft, dr 236 ft.

KANSAS

BARTON COUNTY—Torrey & Feaster et al's Kempler 1, se ne ne 31-18s-11w, td 3433 ft, D&A. Morgan & Flynn et al's Amerine 1, ne ne ne 14-19s-14w, dr 3528 ft. Morgan & Flynn et al's Zimmer 1, se se sw 30-19s-14w, ur 10-in csg 2306 ft. Hilligoss et al's Schmidt 1, ne ne ne 27-19s-11w, dr 2190 ft. Simpson, Noble & Atlantic's Niss 1, cnw ne 31-20s-13w, rur. National Ref. Co.'s McLean 1, sw sw se 25-17s-11w, lcn. Murphy & Morgan's Robinson 1, ne ne sw 21-16s-14w, dr 1600 ft. Hinkle's Smith 1, sw nw nw 1-17s-11w, dr 1260 ft. Merriam's Soeken 1, sw sw se 21-17s-11w, dr 300 ft.

COWLEY COUNTY—Roth & Faurot's Sherwood 1, ne nw sw 11-31s-4e, td 3037 ft, pot. 215 bbls oil, comp. Penwest's Clover 1, ne se se 8-31s-7e, dr 3035 ft. Shawver et al's Wilson 1, ne se ne 11-30s-4e, 10-in csg 1695 ft, fsg. Roth & Faurot's Guthrie 1, se ne nw 30-33s-8e, dr 2050 ft. Morton et al's Roger 1, se se ne 1-31s-4e, ru. Mead Bros. et al's Orr 1, se se sw 23-31s-4e, dr 675 ft. Shawver & Wilt's Baruth 1, sw nw ne 8-34s-3e, running 8-in csg 2763 ft. Craft et al's Taylor 1, ne se nw 32-32s-3e, rig. Mickleson et al's Wallace 1, sw se se 10-33s-4e, mim. Craft et al's Whitson 1, ne ne ne 20-33s-4e, spd and sd. Wakefield's Wilson 1, nw nw nw 4-32s-3e, dr 900 ft.

ELLIS COUNTY—Blackwell O&G et al's Solomon 1, se se sw 28-11s-19w, ru. Twin Drlg Co.'s Reidel 1, sw sw ne 27-13s-16w, dr 1343 ft. Brunson & Ewers-Simpson's Gross 1, ne ne sw 29-14s-17w, br. Bridgeport Mach. & J. J. Hall's Madden Estate 1, ne nw nw 26-15s-18w, mim. Lario O&G Co.'s Walter 1, se ne sw 2-12s-18w, dr 785 ft.

ELLSWORTH COUNTY — Smith-Ash & Phillips Pet. Co.'s Splitter 1, sw sw sw 19-17s-9w, dr 3076 ft. Skiles et al's Kafka 1, ne ne sw 15-17s-8w, dr 545 ft. Empire O&R Co. et al's Kroesch 1, nw nw se 33-17s-9w, rig.

HARPER COUNTY — Marathon Oil Co.'s Zellers 1, csw nw 17-35s-8w, fsg 5009 ft.

HARVEY COUNTY—Empire O&R Co.'s Webster 1, se se sw 8-24s-2w, dr 2400 ft. Harburney Oil Co.'s Scrag 1, nw nw se 24-22s-3w, dr 2060 ft. Western Kansas O&R Co.'s Warkentin 1, csw sw 1-23s-2w, dr 2115 ft.

HASKELL COUNTY—Kuhn Bros. et al's Nilson 1, sw sw se 21-28s-32w, rig.

MARION COUNTY—Milton et al's Young 1, nw nw se 17-21s-3e, dr 2400 ft.

McPHERSON COUNTY—Ok-Tex et al's Moehlinger 1, se sw sw 21-21s-2w, dr 2088 ft.

NORTON COUNTY—Lario O&G & Elwell's Kennedy 1, sw sw nw 22-3s-23w, dr 3646 ft.

RENO COUNTY—McPherson Drlg. Co. et al's Miller 1, se se ne 23-24s-5w, dr 2303 ft. Helmerich & Payne's Schwaiger 1, sw se ne 27-26s-5w, dr 2090 ft. Dickey Oil Co.'s Shepherd 1-A, ne ne nw 22-26s-9w, spd.

RICE COUNTY—Skiles et al's Edwards 1, nw nw ne 3-18s-6w, td 3283 ft, pumped 180 bbls oil 3¼ hrs. Vernon O&G Co.'s Boldt 1, nw sw nw 10-19s-10w, dr 2985 ft. Gratton et al's Williams 1, sw sw nw 17-18s-7w, dr 2500 ft. Continental & Empire's Nickel 1, ne sw sw 13-18s-8w, td 3214 ft, 2000 ft oih, no test. Aylward et al's Oberle 1, se se sw 19-18s-10w, dr 690 ft. Gilmac Oil Co.'s Sargent 1, se se se 31-18s-6w, rig. Dickey Oil & Continental Oil Co.'s Newkirk 1, ne ne sw 11-18s-7w, lcn.

ROOKS COUNTY—Murfin et al's Wasthusin 1, ne ne se 12-6s-18w, dr 1480 ft. Pryor & Lockhart's Bradley 1, sw sw ne 31-10s-16w, ur 6-in csg 3187 ft. Skaer Oil Corp. & Reese's Dryden 1, ne ne ne 28-10s-17w, mim.

RUSH COUNTY—Pryor & Lockhart's Stegman 1, sw nw ne 11-16s-17w, lcn. Keith et al's Dartmouth Savings Bank 1, sw sw ne 3-17s-18w, dr 1875 ft. Rose Spring et al's Jacobs 1, sw se nw 8-16s-17w, rur. Boyle & Grossman's Wilson 1, ne ne ne 33-17s-19w, ru.

RUSSELL COUNTY—Sam Murphy et al's Enochutz 1, sw sw sw 10-15s-13w, td 3323 ft, 500 ft oih, no test. Hartman & Blair's Boxberger 1, nw nw sw 32-13s-14w, cementing 6-in csg at 3150 ft. Empire et al's Major 1, se se ne 11-14s-12w, ur 10-in csg 2200 ft. Bridgeport Mach. & Lauck's Wyckoff 1, se nw ne 27-11s-13w, dr 2425 ft. Chas. Newbold's Krug 1, se sw se 4-15s-14w, dr 2225 ft. Hartman & Blair's Boxberger "B" 1, ne se sw 5-14s-14w, td 3342 ft, D&A. Berry et al's Cook 1, ne ne se 19-11s-13w, dr 635 ft. Eisenhour & Shaffer's Humes 1, sw sw sw 6-14s-12w, sd 810 ft. Reynolds' Fredrickson 1, se sw se 6-13s-12w, dr 2075 ft. Darby Pet. & Continental Oil Co.'s Letsch 1, se ne nw 34-14s-13w, br.

SEDGWICK COUNTY—Johnson's Jensen 1, sw sw nw 11-28s-2e, sd 2340 ft. Dickey Oil Co.'s Ayers 1, sw sw nw 12-27s-2e, mim.

STAFFORD COUNTY—Farris et al's Snyder 1, se se nw 3-21s-11w, running 8-in csg 2940 ft. Kessler & Their's Evans 1, ne ne ne 30-21s-11w, rur. Lario O&G et al's Andress 1, cnw ne 1-21s-13w, mim.

SUMNER COUNTY—Morgan et al's Veail 1, se sw ne 27-32s-2e, dr 3061 ft. Helmerich & Payne et al's Elwell 1, nw nw ne 18-34s-1e, dr 1240 ft. Wilcox O&G et al's Hess 1, se se nw 13-34s-2w, br. Matthews & Derrington's Berry 1, nw nw se 14-35s-1e, spd and sd. Wilson et al's Clark 1, csl nw 15-35s-1w, dr 3100 ft.

TREGO COUNTY — Continental Oil Co.'s Holcomb 1, ne se nw 26-11s-23w, dr 2370 ft. Ault et al's Loflin 1, ne ne sw 22-13s-21w, cellar. Worsley's Puriton 1, sw sw sw 32-13s-25w, cellar. Central Commercial's Wagg 1, nw nw se 17-13s-21w, dr 3906 ft.

WOODSON COUNTY—Morgan et al's Vermont Savings Bank 1, ne nw ne 15-25s-14e, co 1610 ft. Sheedy et al's Grand Lodge 1, ce¼ nw sw 4-25s-14e, dr 630 ft. Mac Reynolds' Guy 1, ne ne se 29-25s-14e, dr 450 ft. Sheedy's Baker 1, se se nw 2-26s-14e, dr 400 ft.

NORTH LOUISIANA

BIENVILLE PARISH—Lide & Greer's Davis Lbr. Co. 1, ne se 12-16n-5w, elev 305 ft, top Arkadelphia 2287 ft, chalk 2501-2831 ft, top Blossom 3070 ft, massive anhydrite 5396-5636 ft, last stringer 5713-53 ft, cored Hill oolitic lime sg 5868-83 ft, coring 6018 ft shale & lime. Rondeau et al's Locke 1, nw ne 9-15n-10w, mim.

BOSSIER PARISH — Humphreys et al's Bulkley 1, 36-21n-13w, claim 4 ft sand so, 2295-99 ft. United Gas Pub. Serv. Co.'s Murff A-1, 17-17n-11w, dr 3745 ft.

CADDO PARISH—Pyramid Oil Co.'s Wheeler A-1, 16-18n-16w, dr 3548 ft shale.

CLAIBORNE PARISH—Wm. C. McGlothlin's Brinker 1, sw se 10-23n-4w, elev 232 ft, top Nacatosh 2150 ft, top red beds 3230 ft, dr 3875 ft shale, lime & red beds, anhydrite stringers between 3530-60 ft. Sugar Creek Synd. et al's Darrett 2, 31-20n-5w, cemtd 9⅝-in csg 4588 ft, woc td 5660 ft, sandy lime; Kilpatrick 1, sw ne 7-19n-5w, owdd, td 4558 ft. E. T. Oakes' Patton Est. 1, 1-20n-5w, fsg, td 4238 ft, oolitic lime.

DE SOTO PARISH—Alexander et al's Stell 1, 5-12n-16w, sd 5596 ft. V. T. Bolin et al's McMichael 1, nw se 26-13n-15w, spd. Larken & Waar's Jackson 1, 1-11n-14w, ru to deepen td 312 ft. R. C. Payne et al's Harris 1, 11-13n-14w, sd 500 ft.

FRANKLIN PARISH—S. C. Jensen's Bailey 1, 12-11n-6e, mim.

JACKSON PARISH—Caldwell L. & T. Co.'s Burroughs 1, ne nw 1-17n-1w, woc surf csg. G. W. Zeigen's La. Cent. Lbr. Co. 4, 25-14n-2w, sd 1781 ft; La. Cent. Lbr. Co. 5, 13-14n-2w, dr 1770 ft.

LINCOLN PARISH—Ark.-La. Gas Co.'s Causey 1, nw ne nw 32-19n-2w, 10¾-in csg 827 ft, dr 2031 ft, shale & bldrs. Caldwell L. & T. Co.'s Hammonds 1, nw ne nw 30-18n-1w, 15⅓-in csg 100 ft, dr 500 ft. Lide & Greer's 10-17n-4w, elev 268 ft, top red beds 3810 ft, top first anhydrite 4580 ft, sd 4676 ft shale.

MOREHOUSE PARISH—Henry E. Rondeau et al's Clark 1, sec 10-20n-7e, rur.

NATCHITOCHES PARISH—Roy Raines et al's Raines 1, sw sw 28-9n-10w, owdd, td 4303 ft.

RAPIDES PARISH—Amerada Pet. Corp.'s Beasley 1, 52-1n-2e, sand 5715-19 ft, woc td 5719 ft. Texas Eagle Oil Corp.'s Hogan 1, 2-1n-2e, dr 4489 ft. Bayou Bouef 1, 47-1s-2e, mir. Texas Co.'s Weil 1, 52-1n-2e, lcn; Weil 2, 53-1n-2e, spd, woc surf csg.

RICHLAND PARISH — J. F. Morissey's

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Jones 1, 15-18n-7e, sd 1310 ft. A. H. Wray's Slocum 1, 10-17n-6e, sd 1500 ft.

SABINE PARISH—Laurel Pet. Co.'s Whitney Corp. 1, 8-10n-13w, lcn. A. H. Tarver's Baker 2, 36-8n-12w, dr 4644 ft lime, streaks shale.

UNION PARISH—Lent, Sears & Bocher's Frost Lbr. Co. 1, nec 27-21n-1e, elev 198.3 ft, woc 881 ft.

WEBSTER PARISH—J. P. Evans' Crichton 1, 35-18n-9w, Blossom sand 2436-62 ft, showed sw, sd 3600 ft for csg. L. R. Skidmore's Barnett 1, 29-17n-9w, rur. Ohio Oil Co.'s R. L. Holloway 6, ne sw 23-21n-10w, top stringer anhydrite 4190 ft, massive anhydrite 4253-4561 ft, dr 6592 ft; Coyle 1, s½ se 23-21n-10w, mim.

SOUTH LOUISIANA

ACADIA PARISH—Superior's G. Bradley 1, Bayou Mallett field, sec 57-7s-1e, dr sn and shale 7060 ft.

ASCENSION PARISH—Sorrento Oil Co., Bernard 1, n of Sorrento dome, sec 9-10s-4e, dk.

AVOYELLES PARISH — Frost Oil Co.'s Hinds Lbr. Co. 1, sec 3-3n-4e, mim.

CALCASIEU PARISH—Fred Oil Co.'s Faist 2, sec 26-8s-10w, fsg at 3110 ft, td 4412 ft. A. G. Oliphant's Calcasieu National Bank 1, Nibblett's Bluff prospect, sec 23-10s-12w, top Discorbis 5953 ft, dr hard shale 6776 ft. Pritchard & Lambert's Landry 1, Dutch Cove prospect, sec 23-11s-10w, td 430 ft, 10-in csg at 200 ft, wocs. Union Sulphur's Prairie Farm Lands 2, South Lake Charles prospect, sec 2-11s-9w, otd 9250 ft, pb to 750 ft. Wheeler Oil Co.'s School Land 1, sec 16-9s-7w, near Iowa, sd at 7160 ft.

CAMERON PARISH — Magnolia's Miama Cooperation Co. 1, Willow Lake prospect, sec 32-12s-8w, abn in lime at 8490 ft.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Pignuer 274, Jefferson Island, sec 12s-5e, td 8610 ft, drill stem tests at 8452-54, 8457-59, 8462-64 and 8477 ft, all unsatisfactory, no commercial showings, will make another dst. The Texas Co.'s State Lake Fausse Point 1, s flank of Fausse Point, sec 35-11s-8e, dr sandy shale and lime 6276 ft.

JEFFERSON DAVIS PARISH — J. K. Lewis' Lock Moore 1, Heckner prospect, sec 32-7s-6w, td 5580 ft, wocs. Shell's Lacassine 1, Hayes prospect, sec 20-11s-5w, td 9802 ft, fsg at 6967 ft.

PLAQUEMINES PARISH—Southern Sulphur Co.'s Manhatten Fruit Co. 1, Venice dome, sec 26-21s-30e, no report.

ST. BERNARD PARISH — Emerald Pet. Co.'s Shell Beach properties 1, s of Bayou Louise, sec 31-13s-15e, wocs at 6346 ft.

ST. JAMES PARISH—Shell's Colonial Sugar 1, Convent prospect, sec 5-12s-5e, r 5690 ft.

ST. MARTIN PARISH — Texas Co.'s St. Martin Land Co. 8, Henderson prospect, sec 9-8s-7e, dr shale 6739 ft; State Plumb Bob 2, Henderson, sec 15-8s-7e, lcn.

TERREBONNE PARISH — Shell's Realty Co. 1, Houma Townsite prospect, sec 103-17s-17e, dry and abn at 10,157 ft.

WEST FELICIANA PARISH—Robert L. Morris' Percy 1, sec 89-1s-4w, dr soft water sn at 3144 ft.

MICHIGAN

EATON COUNTY — Burris and Keeler's Moon 1, 2n-4w-11, dr 450 ft.

GLADWIN COUNTY—Charley Bell's Ross 1, 18n-2w, se se se-34, rig.

GRATIOT COUNTY—Mountain Oil and Gas Co.'s Walters 1, 11n-2w-17, so&g 3248-50 ft, Dundee 3223 ft (?), filled 1500 ft oil 36 hrs, 200 ft water from Traverse (?), csg 5-in March 17, will deepen. Harley William's Smith 1, 9n-2w-29, dr 2900 ft.

GENESEE COUNTY — Jerome Nadell's Olds 1, 9n-8e, nw ne se, sec 35, lcn.

ARENAC COUNTY—Arenac Oil Co.'s Griffin 1, 19n-5e, sw sw nw-1, lcn. Redman Oil Co.'s Kahayda 1, 20n-3e, sw sw se 9, lcn.

HURON COUNTY — Wallace Markle's Opaka 1, 15n-11e-4, sd 2800 ft.

IONIA COUNTY—Wittmer Oil Co.'s Kimball 1, 7n-5w-15, sd 2900 ft, sw.

ISABELLA COUNTY—Pure Oil Co.'s Comstock 1, 13n-6w-15, mi; Keeler-Mitchell 1, 14n-6w-3, old well 1300 ft, to deepen. McClanahan Oil Co.'s and Burk White's Hafner 1, 16n-3w-22, dr 3370 ft.

MONTCALM COUNTY—Michigan Gas and Oil Co.'s Youngs 1, 9n-6w, ne nw se-1, lcn. W. E. Vass, Trustee's De Spelder 1, 10n-8w, nw sw sw-19, lcn. Jetter Oil Co.'s McCracken 1, 9n-5w-6, rig. Star Petroleum Co.'s Ward 1, 9n-5w-20, dr 900 ft. John Martin's Christensen 1, 10n-6w-20, lcn. Old Dutch Oil Co.'s Russell 1, 10n-6w-29, lcn. Rowmor Oil Corp.'s Tow 1, 10n-6w-36, lcn.

SAGINAW COUNTY—Chas. Bell's Wegner 1, 11n-2e-10, dr 450 ft. St. Louis Pipe and Supply Co.'s Yadovack 1, 10n-2e-13, sd wo 5-in csg, 2853 ft. Mid State's Burlson 1, 10n-5e-21, dr 1900 ft. Henry McEvoy's Jenacki 1, 12n-2w-31, dr 3200 ft. King Drilling Co.'s Kube 1, 12n-2e-31 (originally completed in Traverse from 2738 ft) deepening to test Dundee. T. F. Caldwell, Inc.'s McDonagh 1, 10n-5e, nw nw sw 19, mi.

TUSCOLA COUNTY—Bancroft Oil Co.'s Humes 1, 11n-8e-21, dr 2400 ft. Muskegon Dev.'s Casey 1, 12n-10e-9 dr 1700 ft. Smith Petroleum Co.'s McComb 1, 10n-8e-31, dr 500 ft.

MISSISSIPPI

HARRISON COUNTY—Big Ridge Oil Co Hingin 1, se se 13-7s-10w, sd 2300 ft.

JONES COUNTY—Snow-Black Pet. Co.'s Fox 2, 31-7n-12w, spd and sd.

LAMAR COUNTY—Snow-Black Pet. Co.'s Miller et al 1, ne ne sw 3-4n-15w, sd for 10-in csg, td 1446 ft.

WARREN COUNTY—Harry W. Elliott's R. L. Parker 3, 14-14n-1e, 6-in csg 2941 ft, arr install separator, td 3140 ft.

WASHINGTON COUNTY — Mid-Continent Dev. Co.'s Lee 1, 33-15n-8w, cored 2996 to 3004 ft, sd.

MONTANA

FERGUS COUNTY—Emmons et al 1, csw se 20-21n-18e, dr 576 ft.

Fenholt et al 1, se nw sw 24-21n-17e, dr 310 ft.

NEW MEXICO

CHAVES COUNTY—Tannehill et al, Campbell 3, se 1-11s-25e, sd 1750 ft.

McKINLEY COUNTY — S. Dysart et al, Bouton 2, nw ne 14-14n-10w, co 1365 ft.

TORRENCE COUNTY—48 Petroleum Co., Greenfield 1, cnw sw 17-9-8, dr 1450 ft, showing carbon dioxide gas.

EDDY COUNTY—Ohio Oil Co., State-McCullough 1, csw sw 16-17s-30e, dr 2105 ft.

Etz Bros., State 2, csw sw 16-17s-30e, dr 1100 ft.

Barnsdall Oil Co., Dodd 3, csw ne 22-17s-29e, co and running tubing at 2838 ft.

Dooley & Dixon, Commerce 1, cne nw 18-20s-27e, dr 371 ft.

Flint & Berry, Berry 1, 24-17s-27e, dr 382 ft.

Tex Patillo, Thompson 2, ne ne 1-20s-28e, dr 460 ft.

Flynn Welch & Yates, State 73, dr 1240 ft.

Tignor, Etz & Keyes, Keyes 1-B, cse sw 3-17s-38e, spd 80 ft.

LEA COUNTY—Conoco & California Co.'s E. M. Elliott 1-A-22, c sw sw 22-22s-37e, rig. Barnsdall Oil Co.'s D. C. Hardy 1, c se ne 29-21s-37e, elev 3470 ft, base salt 2420 ft, cem 7-in cas 3621 ft, top oil pay 3717 ft, dr 3774 ft, flows by heads, to use acid at 3800 ft. Culberson-Irwin & Roy Stovall's J. B. Humphrey's-Humble 1, c se sw 3-25s-37e, elev 3135 ft, top anhydrite 1030 ft; top salt 1124 ft, dr 1550 ft; John R. Stewart-Repollo 1, c sw se 10-25s-37e, elev 3105 ft, dr 1800 ft. Gulf Oil Corp.'s A. L. Christmas 1, c se se 27-22s-36e, elev 3521 ft, pb fr sul w at 4310 ft to 3625 ft to make gasser; H. C. Collins 1, c se nw 14-21s-36e, elev 3568 ft, top anhydrite 1310 ft, top gas pay 3030 ft, td 3850 ft, flowed 457 bbls nat'l in 18 hrs; Reeves 1, c nw sw 29-20s-37e, lcn; State 1-C, c sw se 24-19s-36e, lcn. Liberty Oil & Drlg. Co.'s J. F. Hair-Repollo 1, c sw se 24-24s-37e, dr 450 ft. Harry Leonard et al's B. T. Lanehart-Humble 1, c sw ne 21-25s-37e, elev 3079 ft, top anhydrite 965 ft, dr lime 2820 ft. Maljamar O&G Corp.'s M. E. Baish 6, c nw se 21-17s-32e, Maljamar area, elev 4028 ft, dr 3275 ft. Ohio Oil Co.'s State-Elliott 1, c nw se 30-19s-37e, elev 3621 ft, dr 3293 ft. Oil Well Drlg. Co.-Southern Pet. Exploration Inc.'s State 1-A, c sw ne 29-19s-37e, dr 65 ft. Plains Production Co.'s R. L. Mosley-Repollo 1, c nw se 34-23s-37e, elev 3168 ft, top salt 1180 ft, dr 1505 ft; Geo. Smith-Humble 1, c se se 4-25s-37e, elev 3174 ft, top salt 1200 ft, dr 1376 ft. Repollo Oil Co.'s M. J. Boyd 1, swc n½ 23-22s-37e, dr 300 ft; E. H. Bolding 1, nwc 10-20s-37e, mim; Annie L. Christmas 1, nec ne 28-22s-37e, elev 3344 ft, dr 1000 ft; W. M. C. Roach 1, nwc 21-20s-37e, mim; R. M. Jones 1, nwc se nw nw 35-22s-36e, mim; J. H. Williams 1, nec 33-19s-37e, elev 3587 ft, td 4153 ft, sd to pump after using acid twice; J. H. Williams 2, swc se 33-19s-37e, mim. Samedan Oil Corp.'s C. U. Parks 1, swc s½ 14-22s-37e, dr 400 ft. Skelly Oil Co.'s J. U. Baker 1, c se sw 22-22s-37e, elev 3348 ft, top anhydrite 1150 ft, base salt 2450 ft, top lime 2590 ft, top white lime pay 3519 to 3590 ft, shot 180 qts nitro 3500-90 ft, complete flowed 125 bbls oil 14 hrs; A. L. King 1, c se nw 4-23s-37e, elev 3331 ft, cem 7-in cas 3350 ft, td 3450 ft; B. L. King 1, c sw se 32-22s-37e, elev 3369 ft, top pay 3632 ft, co after shot, td 3680 ft; R. R. Simms 1, c se se 4-23s-37e, elev 3306 ft, shot 340 qts nitro in sandy-lime 3463-3669 ft, flowed 79 bbls oil and 2,500,000 ft gas in 24 hrs. The Texas Co.'s Lanehart 1, c ne 29-25s-37e, dk. Warren L. Todd, Inc. et al's Lemon 1, c nw se 17-21s-32e, elev — ft top anhydrite 990 ft, salt series 1232-3260 ft, sd in anhydrite (possibly Deleware series) 3704 ft, missed big lime section, may deepen.

OKLAHOMA

ALFALFA COUNTY—Tex-O-Kan's Acre 1, csw ne 14-24n-11w, sd 7327 ft.

ATOKA COUNTY—Vierson et al's Williams 1, ne sw nw 34-2s-10e, td 3935 ft, ur 6-in csg 3920 ft. Phelps & Coats et al's Fidelity Life Ins. 1, se sw nw 23-1s-12e, dr 465 ft.

BECKHAM COUNTY—Wood Pet. & Royalty Corp.'s Blair 1, nw nw se 32-9n-26w, dr 2374 ft.

BRYAN COUNTY—Wayne King's Kimbell 1, cs½ ne nw 36-9s-9e, sd 870 ft.

CADDO COUNTY—Denver P&R Co.'s Sah-Cam 1, cse se 33-10n-10w, swabbed below 6000 ft, made 200 bbls oil 3 days. Turner et al's Sapin 1, ne ne sw 1-5n-11w, sd 3500 ft.

CARTER COUNTY—Carter Oil Co.'s Humble-Williams 1, sw ne sw 27-2s-3w, dr 7977 ft. Southern States Oil Co.'s Moore 1, ne se nw 30-4s-1w, sd 1155 ft. Carter Oil Co. et al's Leon Voorhees 1, cse sw 34-5s-2w, rur.

COAL COUNTY—Shell Pet. Corp.'s Hill 3, se se nw 30-3n-10e, dr 4436 ft.

COMANCHE COUNTY — George Pace et al's Spencer 1, sw sw sw 21-3n-10w, sd 1813 ft. Meiling's Miller 1, ne ne sw 23-4n-12w, dr 690 ft. Nicholas' Hauseholder 1, ne ne sw 8-2n-10w, td 960 ft, D&A.

GARFIELD COUNTY—Sherry et al's Hoken 1, nw nw sw 32-20n-4w, sd 5684 ft. Stanolind-Amerada's Brunken 1, sw sw ne 32-23n-4w, dr 4212 ft. Herndon Drlg. et al's Branson Community 1, sw sw se 23-24n-3w, dr 4100 ft.

GARVIN COUNTY—Suggett & McElreath's Hyre 1, ne ne se 23-2n-1w, dr 4425 ft.

GRANT COUNTY—Southern Oil Co. et al's Allen 1, sw sw se 36-26n-4w, td 5505 ft, D&A.

HARMON COUNTY—Kioalko Trust, Ltd.'s, Crasnoe 1, se se sw 14-3n-25w, lcn.

HUGHES COUNTY—Schuhmacher et al's Schumacher 1, ne nw ne 23-5n-10e, sd 1780 ft. Canavan's Meadors 1, ne se sw 5-8n-10e, bailing 3149 ft. Phillips Pet. Co.'s Eberle 1, ne ne sw 12-5n-9e, dr 1470 ft. Fitzpatrick et al's Cotton 1, se se ne 13-8n-8e, sd 2000 ft. Sivils et al's Montgomery 1, nw sw nw 7-9n-9e, dr 2110 ft.

JACKSON COUNTY—Universal Oil Co.'s Briscoe 1, nw sw ne 36-1s-20w, sd 1550 ft. Jackman's Fee 1, sw sw sw 27-1s-24w, dr 2185 ft. Burnham's Oliver 1, nw nw se 26-1n-20w, dr 150 ft. Lee's Wright 1, ne nw se 19-1n-19w, lcn.

JEFFERSON COUNTY—Sinclair Prairie's Barrett 1, nw nw nw 31-5s-6w, dr 4010 ft. Campbell's Trout 1, se ne ne 6-8s-7e, dr 1536 ft. George Pace's Gardner 1, sw sw sw 23-5s-5w, td 1903 ft, co 1450 ft. Heydrick's Peoples National Bank 1, sw sw sw 26-6s-5w, lcn.

JOHNSTON COUNTY — Magnolia Pet. Co.'s Welch 1, ne ne ne 12-2s-7e, lcn.

KAY COUNTY — Black Gold Pet. Co.'s Cooley 1, ne nw sw 25-28n-4e, ur 8-in csg 1450 ft.

KIOWA COUNTY — Burns & Moore's Webster 1, cne ne 2-6n-17e, sd 458 ft. Shaffer et al's Slusher 1, nw sw nw 35-7n-17w, pb 955 ft, recemented 6⅝-in csg at 949 ft. Adams et al's Stone 2-A, se se ne 34-7n-17w, sd 1193 ft.

LINCOLN COUNTY — Stanolind-Amerada's Crawford 1, ne ne se 35-15n-2e, td 5243 ft, pb 5150 ft, acidizing. Fred McDuff's Jacob 1, ne ne se 10-15n-5e, td 4345 ft, D&A.

LOGAN COUNTY — Stanolind-Amerada & Eason's Gragg 1, sw sw ne 20-18n-4w, coring 6122 ft, to test.

LOVE COUNTY—Sinclair Prairie's Stockton 1, se se sw 26-6s-2w, td 6914 ft, set 7-in csg 6893 ft, wocs. Russell et al's Scott 1, sw se sw 29-8s-2e, dr 4040 ft. Amerada-Stanolind's Westheimer 1, sw se sw 27-6s-2e, td 6797 ft, reaming to run 10-in csg at 2427 ft.

MARSHALL COUNTY—Smith's Chestnut 1, ne ne ne 23-8s-5e, sd 390 ft.

McCLAIN COUNTY — Arab Pet. Corp.'s Autry 1, nw nw nw 16-7n-3w, sd 8019 ft.

McINTOSH COUNTY—I.T.I.O. Co.'s Toncred 1, sw sw ne 9-9n-14e, td 3628 ft, reaming.

NOBLE COUNTY—Continental Oil Co.'s Pruitt 1, nw se sw 19-20n-1w, rur.

OKLAHOMA COUNTY—Sinclair Prairie's Corbett 1, ne nw ne 17-13n-3w, td 6542 ft, 2500 gals acid, flowed 17½ bbls oil and 3 million gas. Hollenback et al's Cooper 1, nw nw ne 15-11n-1e, rur.

OSAGE COUNTY—Elfred's Beck 1, se se ne 6-23n-7e, lcn.

PAYNE COUNTY—Pierce's Kiheag 1, sw sw sw 7-17n-1e, dr 4864 ft. Denver Prod. et al's Pratt 1, nw nw nw 20-18n-3e, mit.

PONTOTOC COUNTY—Gulf Oil Corp.'s Emry 1, sw sw ne 15-2n-6e, td 6600 ft. Mid-Texas Pet. Co.'s Harbet 1, sw sw se 30-5n-4e, td 1946 ft, wocs. Patsy Oil Co.'s Magnuson 1, sw se se 23-2n-7e, sd 4785 ft. Sandback et al's Sands 1, ne ne ne 20-3n-5e, mach. Shaw's Illinois Bankers Life 1, nw se nw 1-4n-5e, rur. Pioneer O&G Co.'s Bayne 1, se sw sw 16-5n-6e, td 3016 ft, pb 2768 ft, pump 7 bbls oil, comp.

POTTAWATOMIE COUNTY — Gulf Oil Corp.'s Bois-Clark 1, sw se se 21-6n-4e, br.

ROGER MILLS COUNTY — Anderson & Kerr et al's Teeter 1, cse se 2-17n-25w, td 6504 ft, D&A.

SEMINOLE COUNTY—Wood Oil & Dirickson's Ellis 1, nw ne ne 36-9n-5e, dr 3695 ft. Amerada et al's Community Stout 1, ne ne sw 3-10n-5e, dr 1788 ft. Imperial Drlg. Co.'s Aldridge 1, sw ne nw 32-9n-8e, rig. Wynona-Jarvis-Holmes' Horton 1, ne sw ne 18-7n-8e, dr 2160 ft.

STEPHENS COUNTY — Endicott et al's McFatridge 1, nw nw sw 11-3s-9w, sd 795 ft. Clyde Rhodes et al's Doak 1-A, sw sw sw 1-1s-5w, sd 1514 ft.

TILLMAN COUNTY — Gulf Oil Corp.'s Wearmouth 1, se nw se 31-1s-16w, td 3395 ft.

WASHITA COUNTY—McWhirter et al's Fee 1, sw sw sw 34-8n-19w, dr 1380 ft.

WEST TEXAS

ANDREWS COUNTY — Fuhrman Pet. Corp.'s W. H. Boner 3-B, nw¼ sec 25, blk A-43, PSL sur, elev 3197 ft, top anhydrite 1740 ft, top salt 1770 ft, cem 7-in cas 4004 ft. Humble's J. S. Means 7, c se sw sec 2, blk A-35, PSL sur, elev 3149 ft, top anhydrite 1846 ft, top salt 1895 ft, jkd at 4202 ft, pb to 3250 ft, completed as 4,973,000 ft, gas in pay topped at 2672 ft; J. M. Spinks 1, c sw se sec 13, blk A-20, PSL sur, Means area, rur. J. W. Tripplehorn et al's A. R. King 2, NEc n½ nw sec 11, blk A-46, PSL sur, dr 4010 ft.

BREWSTER COUNTY—Floyd C. Dodson et al's Texas American Synd. 1-A, c ne ne sec 66, blk 10, GH&SA Ry. sur, deep test, elev 4228 ft, dr 680 ft. G. H. Storey et al's Jim P. Wilson 1, c se nw sec 3, blk 212, T.&St. L. Ry. sur, sd 1875 ft.

COCHRAN COUNTY—Honolulu Oil Corp.-Cascade Pet. Co.'s T. B. & R. F. Duggan 1, League 55, Oldham Co. S. L. sur, lcn.

CONCHO COUNTY—Maverick Oil Co.'s Jim Rice 1, sec 18, H&TC Ry. sur, elev 1887 ft, top Strawn 1603 ft, gas pay 1827½ ft, show oil 1835-42 ft, dr 2245 ft. John Westbrook Co.'s C. C. Ledbetter 1, sec 2, A-1673, blk 65, H&TC Ry. sur, elev 2000 ft, est. 500,000 ft gas, sd 2110 ft.

CRANE COUNTY—Big Basin Pet. Co.'s Jax Cowden 1, NEc nw ne sec 77, blk "X", elev 2456 ft, top salt 548 ft, dr 2435 ft. Clark-Cooper & Smith's A. P. Jorden 1, NEc 160-ac lse, sec 12, PSL sur, blk B-22, lcn. A. R. Eppenauer and A. H. Livingston's fee 1, sec 13, blk 6, H&TC Ry. sur, lcn for Ordovician lime test. D. J. Finley and A. W. Cherry's E. S. Hughes-Conoco 1, ne¼ sec 2, J. A. Prater sur, elev 2519 ft, top anhydrite 495 ft, top salt 595 ft, dry and abd in sul w 2408-10 ft. Loffland Bros. et al's J. B. Tubb-Gulf 1, c nw¼ sec 9, blk B-27, PSL sur, elev 2540 ft, top anhydrite 428 ft, salt series 495-1285 ft, top brown lime 2478 ft, sd 4510 ft. Humble O & R Co.'s J. B. Tubb 1, near c nw nw sec 11, blk B-27, PSL sur, elev 2557 ft, top anhydrite 450 ft, top salt 520 ft, lime pay 4361-4375 ft, flowed 104 bbls oil 24 hrs natural, used 2000 gals acid and flowed 325 bbls 6 hrs ½-in choke on tubing. John I. Moore et al's T. C. Barnsley 1, c sw sec 43, blk 32, PSL sur, Ordovician lime test, elev 2472 ft, top anhydrite 500 ft, top salt 680 ft, dr 1780 ft. Sinclair Prairie and unit members' J. B. Tubb-California Co. 1, SEc sec 3, blk B-27, PSL sur, elev 2540 ft, pumps 3 bbls. 30° gravity oil daily after using 1000 gals acid in lime 2962-3164 ft. L. R. Stroud et al's J. Mosley 1, sec 4, blk 31, H&TC Ry. sur, lcn.

CROCKETT COUNTY—J. W. Dieringer, B. C. Mann & E. M. Wahlenmaier's J. W. Robbins 1, sec 2, blk B, GC&SF Ry. sur A-5498, dr 600 ft. Dr. J. G. Harris et al's O. W. Parker 1, sec 83, blk 1, I&GN Ry. sur, elev 2215 ft, sd in salt w sand 2016 ft. John I. Moore et al's A. C. Hoover 1, SEc sec 4, blk "FF", B&B sur, dr 475 ft.

CULBERSON COUNTY—Anderson-Prichard Prod. Corp.'s H. A. Borders 1, nw¼ sec 34, blk 69, PSL sur, elev 4565 ft, dr gray lime 4965 ft.

JEFF DAVIS COUNTY—C. M. "Dad" Joiner et al's Jones-Coffield 1, ne¼ sec 8, blk 3, H&TC Ry. sur, dr lava and shale 2755 ft.

ECTOR COUNTY—Barnsdall Oil Co.-York & Harper, Inc.'s H. C. Foster 2, c sw sw sec 18, blk 43, T&P Ry. sur, T-2-S, dr 3800 ft. W. H. Dunning Jr. et al's C. Scharbauer 1, SEc sw¼ sec 33, blk 44, T&P Ry. sur, T-1-N, elev 3100 ft, top anhydrite 1360 ft, salt series 1390-2475 ft, top Yates sand 2590 ft, top gray lime 3725 ft, lime pay 4153-4175 ft, shot 120 qts 4145-75 ft, complete flowed 200 bbls oil and 15,000,000 ft gas; H. E. Cummins 1, NEc se¼ sec 33, blk 45, T&P Ry. sur, T-1-N, rust. Stanolind's J. E. Witcher 1, c ne ne sec 34, blk 43, T&P Ry. sur, T-2-S, elev 2937 ft, pb fr sul w at 4230 ft to 4211 ft, shot 420 qts 4092-4198 ft, flowed 396 bbls oil 12 hrs; E. F. Cowden 1-B, c ne ne sec 14, blk 43, T-2-S, dug cellar and sd.

EL PASO COUNTY—A. M. Blume et al's F. W. Cook 1, ne¼ sec 321, S. F. No. 8134, sd 560 ft. Tri-State Oil Co.'s Chas. & L. M. Kinkel 1, NEc sec 237, S. F. No. 7232, dr 1870 ft.

FISHER COUNTY—Forest Dev. Corp.'s A. M. Dry 1, near c sw se sec 108, blk 2, H&TC Ry. sur, pb fr crooked hole at 2170 ft to 1450 ft. Tide Water and Merry Bros. & Perini, Inc.'s M. Howard 3, NWc se ne sec 180, blk 2, H&TC Ry. sur, dr 1200 ft.

GAINES COUNTY—Landreth Prod. Corp.'s W. H. Kirk 1, SWc sw¼ sec 22, blk A-21, PSL sur, cem sur cas. E. M. Wahlenmaier-York & Harper, Inc.'s E. H. Jones-Humble 1, c sw sw sec 414, blk G, CCSD & RGNG Ry. sur, elev 3528 ft, top anhydrite 2171 ft, top salt series 2290 ft, top Yates sand 3190 ft, top lime 4980 ft, dry and abd in dry lime 5224½ ft. W. T. Walsh and Harry Adams Corp.'s S. J. Averitt 1, NEc ne ne sec 228, blk G, W. T. Ry. sur, elev 3322 ft, top anhydrite 1969 ft, top salt 2030 ft, show gas 2785-95 ft, top Yates sand 2920 ft, trace sul w 4813-15 ft, est. 12,268,000 ft gas in lime 4890-4910 ft, tools lodged 250 ft off bottom.

GARZA COUNTY—Danciger Oil & Refineries, Inc.'s V. A. Hartman 1, sec 1401 E. L. RR Sur A-294, lcn. M. L. Richards et al's post Est. 1, NEc se ne sec 6, blk 5, K. Aycock sur, dr 2600 ft.

GLASSCOCK COUNTY—Fleetborn Oil Corp.'s F. C. Dodson 1, SEc sec 13, blk 34, T&P Ry. sur, T-3-S, dr 750 ft. Lucas Waldrop et al's W. B. Currie 1, c ne ne sec 216, blk 29, W&NW sur, lcn.

HOWARD COUNTY—Southern Oil Corp.'s W. P. Edwards 1, swc sec 32, blk 30, T&P Ry sur, T-1-S, lcn.

HUDSPETH COUNTY—Haymon Krupp Oil & Land Co.'s S. J. Thaxton 1, near SEc ne se sec 34, blk 74, T&P Ry. sur, Tsp. 6, sd in shale 873 ft.

JONES COUNTY—Bob Elmore et al's O. L. Caton 1, sw¼ sec 10, D&DA Lands sur, sd 1640 ft. Hal Hughes et al's R. D. Bumpass 1, (70-ac lse.), T. Maltby sur, dr 2315 ft. Jamison, Pollard & Forster's G. B. Triplett 1, SWc 100-ac lse, J. Goocher sur, elev 1680 ft, sd 2110 ft. Thos. D. Humphrey et al's A. A. McDuff 1 (155-ac), 2 mi w Hawley field, so&g, dr 2200 ft.

LOVING COUNTY—Porter Rankin et al's W. D. Johnson 1, nw¼ sec 12, blk 57, T&P Ry. sur, Tsp. 1, elev 2904 ft, dr 3010 ft. Mason Oil Co.'s Minnie Kyle 1, nec nw ne sec 17, blk 55, T&P Ry. sur, Tsp. 1, lcn.

MARTIN COUNTY—Woodley Pet. Co.-Kirby Pet. Co. & Boone Bros.' F. A. King 1, NWc sw¼ sec 30, blk 35, T&P Ry. sur, T-1-S, cem 10¾-in cas 1719 ft. Benedum-Trees et al (was Wm. Hix's) O. B. Holt 1 (5000-ac), League 319, Garza County School Land sur, lcn.

MENARD COUNTY—Wilcox O&G Co.'s Lee Murchison 1, swc sec 158, Abst. 1840, elev 2190 ft, dr 920 ft.

MITCHELL COUNTY — Southern Union Gas Co.'s Costin 1, SEc sec 11, blk 28, T&P Ry. sur, T-1-S, lcn abd.

NOLAN COUNTY—N. B. Hall, A. Glenn et al's Georgia Tech 1, sw¼ sec 89, blk 24, T&P Ry. sur, elev 2330 ft, sd 200 ft. David Thomas, Ridgeway et al's Mrs. G. W. Cochran 1, ne¼ sec 113, blk 1, H&TC Ry sur, lcn.

PECOS COUNTY—Cardinal Oil Co.'s White-Baker-Gulf 1, nec sec 1, blk 194, GC&SF Ry. sur, dr 410 ft. Dobbs Oil Co.'s J. M. Rooney 1, near c ne ne sec 12, blk 125, T&St. L. Ry. sur, dr 515 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, blk D, GC&SF Ry. sur, lcn. Trans-Texas Oil Co.'s Popham Land & Cattle Co. 1, se¼ sec 235, blk 11, GH&SA Ry. sur, dr 255 ft; C. M. Caldwell 1, SEc sec 27, blk 50, T&P Ry. sur, Tsp 9, elev 2865 ft, so&g 3074 ft, pb fr sul w at 5280 ft to 4405 to treat with acid; Gallagher 1, NEc nw sec 9, blk 51, T&P Ry. sur Tsp. 10, rust.

REEVES COUNTY — R. W. Clark and Washington Oil Co.'s Radford 1, sec 39, blk 56, PSL sur, elev 3169 ft, temp abd 502 ft.

PRESIDIO COUNTY—Linderman Bros. Oil Corp.'s R. I. Bledsoe 1, SWc ne sec 15, blk 351, GC&SF Ry. sur, dr 1430 ft.

RUNNELS COUNTY—Melrose Oil Co.'s Mrs. L. P. Wood 1, NWc 30-ac lse, Willett Holmes sur No. 100, sd 2926 ft. Golden Pet. Co.-John Castor's H. Giesecke 1, blk 150, Subdiv 3, Jas. Hughes sur, cem sur cas.

SCHLEICHER COUNTY—Cardinal Oil Co.'s J. A. Whitten 1, c ne nw sec 35, blk L, TC Ry. sur, elev 2353 ft, pb fr 1600 ft to 1000 ft to straighten hole. Mangus Oil Corp. (was W. C. Proctor et al's) Judkins-Spencer (Pure) 1, c sw¼ sec 4, GC&SF Ry. sur, blk V-28, or Hooper-Wade sur, blk A, elev 2209 ft, trace gas 4350-70 ft, sd 4407 ft.

SCURRY COUNTY—Coffield & Guthrie, Inc.'s W. A. Wade 1, NWc sec 115, blk 97, H&TC Ry. sur, elev 2306 ft, pb fr 3168 to 1820 ft, shot 150 qts 1745-1820 ft, testing. J. G. Bristow & R. H. Cantrell's Shannon-Magnolia 1, c nw¼ sec 331, blk 97, H&TC Ry. sur, elev 2552 ft, top anhydrite 848 ft, top salt 860 ft, dr 2240 ft.

TAYLOR COUNTY—Hightower O&R Co.'s Mrs. E. E. Sadler 1 (475-ac) sec 31, C. Cole sur, sd 2530 ft.

TERRELL COUNTY—F. C. Bates and J. H. Felps 1, sec nw¼ sec 5, G. W. Turley sur, blk A-4, elev 2185 ft, sd 5600 ft.

TERRY COUNTY — Danube Oil Corp.'s Brownfield 1, c se¼ sec 23, blk T, D&W sur, lcn abd.

UPTON COUNTY—Greencliff Oil Corp.'s J. H. Tippett-Halff 1, c ne¼ sec 58, blk Y, TC Ry. sur, elev 2648 ft, top anhydrite 1254 ft, top salt 1312 ft, top Yates 2313 ft, dr 3145 ft. John W. Emch & Shell's Mrs. A. E. Gordon 1, ne¼ sec 47, blk y, T. C. Ry. sur, elev 2677 ft, top anhydrite 1255 ft, top salt 1330 to 2035 ft, top Yates 2115 ft, top lime 3660 ft, dry and abd in sul w 3740 ft. J. G. McKenzie et al's W. H. & L. M. Taylor 1, SEc ne se sec 22, blk B-2, GC&SF Ry. sur, sd 630 ft.

WINKLER COUNTY—Crafton Oil Co. et al's J. B. Walton-Pure 2, SWc ne¼ sec 1, blk B-3, PSL sur, lcn. Conoco's J. B. Walton 1, SEc ne¼ 8, blk B-3, PSL sur, sp. Wm. H. Dunning, Jr. et al's B. F. Jenkins 1, SWc s½ s½ sec 21, blk 77, PSL sur, lcn. Gulf's E. R. Hill 1, SWc se¼ sec 9, blk B-11, PSL sur, elev 2809 ft, top anhydrite 845 ft, salt series 1065-2355 ft, top brown lime 2415 ft, top sul w 4100 ft, dr 4150 ft; L. Daugherty 1-A, SEc sw¼ sec 35, blk 74, PSL sur, elev 2869 ft, base salt 2705 ft, top lime 2734 ft, tested 3 bbls oil 2925-40 ft, salt w 3126 ft, dr 3245 ft; Keystone 11, SWc se¼ sec 10, blk B-3, PSL sur, elev 2939 ft, top salt 1189 ft, shot 220 qts 3300-3370 ft, flowed 632 bbls. 34.4° oil and 3,864,000 ft gas; Keystone 12, NEc sec 10, blk B-3, PSL sur, cem 9⅝-in cas 1108 ft. R. H. Henderson et al's Walton-Humble 1-A, NEc sec 9, blk 26, PSL sur, dr 1250 ft; Walton-Humble 1-B, SEc sw¼ sec 10, blk 26, PSL sur, dr 1075 ft. Wilson Keys and A. W. Cherry's Abilene Cent'l State Bank-Conoco 1, NWc ne¼ sec 25, blk 26, PSL sur, elev 2870 ft, flowed 595 bbls after shot 158 qts, td 2878 ft. Fred Hyer et al's Cowden Cattle Co. 1, c nw¼ sec 8, blk A-56, PSL sur, top anhydrite 1230 ft, elev 3082 ft, top salt 1500 ft, fnh 3375 ft. Humble & Tide Water's J. B. Walton 1-D, SEc sec 20, blk 74, PSL sur, elev 2907 ft, top anhydrite 1070 ft, salt series 1290-2575 ft, top lime 2595 ft, top Yates 2720 ft, shot 220 qts 2772-2930 ft, complete, flowed 482 bbls oil; Walton 1-C, SWc se¼ sec 21, blk 74, PSL sur, dr 2200 ft. C. M. Joiner et al's Cowden-R. M. Evans 1, near c nw¼ sec 46, blk 73, PSL sur, elev 3203 ft, top anhydrite 1580 ft, top salt 1640 ft, top Yates 2930 ft, trace gas 2930-37 ft, dr 3010 ft. K. D. Oil Co.'s Pink Mitchell 1, NWc s½ ne¼ sec 23, blk B-10, PSL sur, dr 650 ft. Illinois Oil Co.'s Central State Bank (Abilene)-Conoco 1, SEc sw¼ sec 23, blk 26, PSL sur, cem surface cas. Magnolia's J. B. Walton-State 1, NWc ne¼ se ¼ sec 7, blk B-3, PSL sur, elev 2921 ft, top anhydrite 735 ft, top lime 2309 ft, tested 1¼ mil ft dry gas after two nitro shots, at 3105-3279 ft, dr 3400 ft. Osmond-Crandall and Joe Maxwell's J. B. Walton-State 1, nwc sw¼ sec 27, blk B-3, PSL sur, top anhydrite 950 ft, top salt 1220 ft, dr 1450 ft. Sinclair Prairie's

J. B. Walton 1, NEc ne¼ sec 20, blk 77, PSL sur, dr 3100 ft. Sid Richardson Oils, Inc.'s Walton 3, SEc sec 1, blk B-3, PSL sur, dr 500 ft. Tom Sloan, Frank E. Lewis et al's John Sealy 1, c se¼ sec 72, blk A, GMMB&A sur, lcn. Sun Oil Co.'s Keystone 1, SEc sec 3, blk 77, PSL sur, elev 2959 ft, top anhydrite 942 ft, top salt 1090 ft, top lime 2533 ft, show oil 3400-11 ft and 3418-20 ft, td 3450 ft, sd for dst. Superior O&G Co's M. J. Hill 1, SEc e½ sw¼ sec 18, blk 11, PSL sur, cem 10-in cas 917 ft, td 1120 ft. Walenmaier Pet. Corp. & Atlantic O. P. Co.'s J. B. Walton-Humble 1, SEc sw¼ sec 34, blk 74, PSL sur, elev 2874 ft, top anhydrite 1160 ft, top salt 1440 ft, top lime 2640 ft, est 3,000,000 ft gas 2798-2828 ft, cem cas 2828 ft.

YOAKUM COUNTY—Honolulu Oil Corp., C. J. "Red" Davidson et al's L. P. Bennett-TP Coal & Oil Co. 1, c ne ne sec 678, blk "D", John H. Gibson sur, elev 3557 ft, top anhydrite 2424 ft, top salt 2535 ft, top Yates sand 3220 ft, top lime pay 5096-98 ft, sul w at 5112 ft, water exhausted, used 2000 gals acid on 3-16-36 and est 75-bbl pumper. Lou G. Stogner et al's Goggins-Roosevelt 1, c ne¼ sec 215, blk D, John H. Gibson sur, lcn. E. R. Bahan & R. R. Rhodes's Mrs. Alice Henard 1, c sw¼ sec 367, blk D, John H. Gibson sur, lcn for 5500-ft test.

SOUTH TEXAS

ARANSAS COUNTY — Buckingham Oil Co.'s McCampbell 1, lots 8 and 9, sec 41; lots 8 and 9, sec 42, McCampbell subd, James Orick survey, 2 miles nw Aransas Pass, 8 ft fr San Patricio County line, coring 6497 ft.

ATASCOSA COUNTY—R. C. Lee, Trustee (Atascosa Trust), U. A. Doumch 1, 152-ac tr, blk 10, J. T. Russell sur No. 1222, 3 miles n Poteet, coring 2094 ft. W. B. Hinton's Weigand 1, in Donovan sur No. 145, lcn. R. McIntyre's (Cliff Oil) San Antonio Joint Stock and Land Bank (H. A. Billinch) 1, J. B. Woodleff sur No. 246, 7½ mi e Coughran, dr 2875 ft.

BASTROP COUNTY—Franklin et al's Betty Lawhon 1, Standifer sur sw of Elgin, dk and sd. G. E. Holmstrom's Brundridge 1, Enoch-Harris sur, 3 mi ne Elgin, dr 385 ft, shale. A. W. Phillips' Vaughn Lumber Co. 1, 1110-ac tr, E. Sartuche sur No. 10, 5 mi ne Bastrop, temp abn at 150 ft.

BEE COUNTY—Marine Oil Corp.'s Webb-Hearn 1, in 92-ac lease E. Ryan sur, 2000 ft se disc well Beeville field, sd 5935 ft, set 7 inch casing to bottom, perf 5900-14 ft, still flowing oil and sw, well taken over by Marine Oil Corp. and contract given to Lonnie Glasscock, now ru to wo. Geo. M. Church et al's G. A. Ray 1, Anna Burk sur 2 mi e Beeville, coring 2460 ft. Clyde Echols et al's Plummer 1, F. J. Chessman sur, sd 1810 ft. H. A. Pressey's R. T. Hicks 1, 1120-ac tr, Jose M. Uranga gr, ab 668, 4½ mi s of Normana, td 120 ft, set sur csg, now sd. G. M. Richardson et al's Mengers 1, center w 100-ac of W. R. Ryan 500-ac tr, Wm. Allen sur, near Tynan, Burton Drlg. Co., mim.

BEXAR COUNTY — American Gas Co.'s Oliver No. 5, 400-ac tr M. F. Rodriguez sur, Gas Ridge, td 2996 ft, set 6⅝ csg 2250 ft, bad cement job, recemented, dr plug, cleaning out hole 2210 ft. Tom Anderson's C. J. Krause 1, S. McCullough sur, sd 350 ft. Carter & Ingersoll's Louis Mann 1, 60-ac tr, John Christopher sur, 3 mi s Von Ormy, dr 870 ft in shale. J. B. Chew et al's Frank Bonkowski, Wm. McMinener sur, sec 10, D&A 1256 ft. Crouch & Shadrock's W. Kohler 2, 88-ac tr A. M. Baerrera sur No. 58, td 650 ft, ran tubing and rods below this depth. Joe Deupree's Mrs. R. S. Nina (R. S. Coffey) 1-A, F. Rodriquez sur, 7 mi s San Antonio, td 1200 ft, recemented at 1059 ft, bailed down, cement gave way, water broke in, now sd for orders; Wm. H. Russell 1, 723-ac tr, Fernando Rodriquez sur, 9 mi ne San Antonio, deepened from 1001 to 1075 ft, testing on pump and show 75 bbls fluid, 54 bbls of which is oil; S. G. Winter 1, 100-ac tr in Fernando Rodriguez sur, one mile west of No. 1 Russell, spudding. H. J. Moore's Mrs. Lena Eisenhauer 1, 80-ac tr in Gertrude Rodriguez sur, 9 mi ne of San Antonio, sd 486 ft, wait on csg. O. M. Owensby's Minna Coreth 1, 284.04-ac tr, Adam Stafford sur No. 49, near Eckert field, sd 1091 ft, run tubing, had slight show of oil and gas. H. A. Pagenkopf's Chas. Rittiman 1, 100-ac tr, J. Chappal sur, 12 mi ne San Antonio, near Kirby, top Edwards lime 1110 ft, dr 2300 ft in Glenrose. W. A. Schaeffer Co.'s P. J. Coimperlik 1, 102-ac tr, J. M. Bustillos sur, 16 mi e San Antonio, dk. H. B. Schumacher's Hilda Gillette 1, 49-ac tr in M. G. de Alamiz sur No. 20, and 7 mi south of San Antonio, sd 490 ft, repairing rig. F. M. Shaver's A. W. Bitter 2, 3000 ft n Nelson road and 150 ft el of tr Jose Baerrera sur No. 58 (750 ft n of former lcn), spudding. Trawalter & Umburn's Juan Escalera 1, 213-ac tr, Francisco Ricardo sur No. 6, dry and abnd 957 ft.

BLANCO COUNTY—R. T. Rowe & W. E. Nixon's Polk Morrisey 3, 222-ac tr, Thomas Webb sur No. 91, 3 mi e of Blanco, sd 247 ft.

BROOKS COUNTY—The California Co.'s B. Garcia 1, tr No. 3, Las Mestinas de Gonzalina gr, Alta Mesa dist, td 4066 ft, set and cemented 10 in csg at 4045 ft, woc. Dick Young et al's Singer 1, ne¼ se¼ sec 312, sand 917-919 ft; dst 914-19 ft, dst failed, set 6⅝ inch csg at 915 ft, standing with 750 ft of 21.5 gravity oil in hole, fsh for twisted off tubing.

BURLESON COUNTY — Walter Blumenthal's G. V. Crain 1, W. C. Pearce sur, ab 297, 1 mi fr Milam County line, dr 5727 ft in Eagleford.

CALDWELL COUNTY—Pat Armstrong et al's No. 1 N. Dunlap Est, 431-ac Farm in S. Seal sur, sd 21 ft. Detroit-Texas Dev. Co.'s W. P. Dunlap 3-A, S. F. Sanders sur, Dunlap area, sd 2390 ft. J. J. Elam et al's Francis-Brown-Cochran 1, W. F. Young sur, 5 mi e of Luling, td 21 ft, prep resume operations 3-19-36. Exploration Dev. Co.'s (Fred Meyer) W. R. Eibaud 1, 57-ac tr, S. Seal sur, Dunlap area, dk. Joe Graham's Martindale 1, S. Morrison sur, e of Staples, dr 520 ft, shale. W. C. Jenning's McMahan 1, James Pinchback sur, se of Lockhart, dr 1525 ft. Ogden & Reed's Mamie Barber et al, 150 ft sl and wl of 65-ac lse in Squire Damon survey, and 5 mi nw of Dale, 2000-foot contract, dr 1610 ft. Fred G. Scott's E. P. Dunavent 1, 4 mi se San Marcos, dr 150 ft. Sterling & Wilson's M. L. Strawn 1, Pablo Martinez sur, at Lytton Springs townsite, sp. M. R. Tinkle et al's Arnold 1, S. Seal sur, Dunlap area, lcn.

CALHOUN COUNTY — Continental Oil Co.'s Am. Nat'l Realty Co. (Moody) 2-A (3), sec 6 blk C, P. Garcia sur, 9 mi se Seadrift, td 9083 ft, set 5¾ inch csg on bottom, recemented at 7977 ft with 40 sacks, perf and tested 15 min. Well would not flow, coming out with tool. Crown Central Pet. Co. et al's M. C. Driscoll 1, lot 24, Armstrong Ranch subd, Benito Moralles sur A-28, td 1254 ft, set sur csg, woc. Hilton & Maise's J. Brundrett 1, 330 ft nel and nwl of tr 8 in Wm. Little sur, reinstated, td 192 ft, mimr. Humble & Plymouth's Patrick H. Welder 1, 10,000-ac lse, Gardner Smith sur, dr 5519 ft in sandy shale, will make dst.

CAMERON COUNTY—W. T. Daniel's & King-Woods Oil Co.'s Port Isabel Co. 1, center lot 17, share 29, 30 and 31, Buena Vista gr, 6 mi north Bayview, sp and sd, wor.

DE WITT COUNTY — Hill Brothers & Koontze's Herman Riedel 1, 535.5-ac tr, J. Santos sur (6 mi se of Yorktown), dr 5800 ft. Universal Oil and Galspie's Schubel 1, C. Fitzgerald sur, ab 2 mi nw Yoakum, sd 887 ft.

DUVAL COUNTY—Charles Daubert et al's D. F. Kreis 1, sec 518, 6 mi e Loma Novia, D&A 3500 ft. G. E. Glasscock's Milano Land & Garden Co. 1, 330 ft el and sl of ne corner of sur 88, but in sur 87, 6 mi se Gov't Wells, dk and mim. Frank J. Gravis et al's Gravis et al 1, sec 250, 9 mi w San Diego, fsh at 4502 ft. Howard Pet. Corp.'s G. Ruiz 1, sec 5, e of Loma Novia, 4000 ft test, ru. Humble O&R Co.'s No. 2 L. & P. T. Wright sur 118, td 2533 ft, sand 2522-33 ft. Magnolia Pet. Corp.'s Ira G. Yates 1, 330 ft sl and el of sur 556, lcn. Marzo Oil Co.'s E. R. Hagist 2, sec 269, 480 ft e No. 1 Hagist, Hagist area, td 2119 ft, set 7 inch csg 2107 ft, sd. Porter & Steven's Sutherland 1, sec 126, Hoffman area, ½ mi n production, dr 1500 ft. Rancho & Gem Oil Co.'s Bishop Cattle Co. 1, 1 mi n Hoffman field, D&A 2837 ft. Reliance Oil & Royalty Corp.'s 1-A P. L. Telford, sec 386, lcn. Rogers & Rogers Sophie Hoffman 1, sec 118, Hoffman area, tested gas in Gov't Wells sand 2835 ft, td 2890 ft, pulling liner; Sutherland 2, sec 120, 1150 ft nw Sutherland 1, ru. Santa Clara Oil Co.'s (Atkins & O'Neil) No. 1 Book Ranch in Santa Cruz de Concepcion gr in extreme southeast portion of county on 9829-ac tr, 6000-foot test, D&A 6020 ft. Smith and Hamill's Bishop Cattle Co. 1, nw¼ of ne¼ of sur 70, 2 mi n of Hoffman field, dr 1800 ft.

EDWARDS COUNTY—Paul Teas' J. B. Stewart 1, sec 2, GC&SF sur, 14 mi se Rock Springs, dr 3000 ft.

FRIO COUNTY — Amerada Pet. Corp.'s Cory & McWilliams 1, tr 13, Jose Arocha sur No. 298, 2¾ mi sw Smith 1, td 5569 ft in Austin chalk, 7 inch csg set 5434 ft, flowed 987 bbls oil in 3 hrs through open flow, shot with 135 quarts; T. G. McWilliams et al tr 3, Jose Arocha sur 299, dr 4235 ft; T. G. McWilliams et al 6, Arocha sur 298, dr 640 ft; T. G. McWilliams et al, tr 17, J. M. Tijerina sur 300, d 5150 ft; Halff & Oppenheimer 5, S. Glenn sur No. 335, Pearsall area, td 5362 ft, set 7 inch csg 5275 ft, flowed 55 bbls hr, but not fully complete; Halff & Oppenheimer 6, San Antonio Ditch Co. sur, 1104, td 5467 ft, top chalk 5394 ft, set 7-inch csg 5408 ft, flowed 1316 bbls of oil in one hr, 25 min and 12 mcf gas, now shut in; Halff & Oppenheimer 7, 330 ft swl, 1320 ft nwl of B. J. Gilman sur, prep sp; Elgin O. Kothman, 550 ft most northerly nw cor of B. L. Crouch sur No. 90, 9½ mi s of 3900-foot production and 1½ mi e of 5600-foot production, td 4370 ft, washing down to dd. Thornton Davis et al's Halff & Oppenheimer 1, J. D. Clara sur No. 336, 1 mi w of Pearsall field, dr 4450 ft.

GOLIAD COUNTY—Jane Oil Co.'s (Diamond Half Oil Co.) Gillett No. 2, 745-ac tr, J. Gomez sur, 660 ft e No. 1, lcn. Magnolia Pet. Co.'s S. J. Tipton 1, A. S. Thurmond sur, near common cor of Karnes-DeWitt-Goliad counties, bldg dk. Port Isabel O&G's Duaderstadt 1, in Solomon Hall sur, in e end of county, 5500-foot test, dr water well (closed well). Thompson Drlg. Co.'s J. E. Pettus 1, in Maria de Jesus Y Bravo gr, 1100 ft se Stanolind No. 1, 12 mi nw Goliad, sd 4751 ft, oil show 4601-09 ft. Zeni Oil Co.'s (was S. T. Potter et al), Lutenbacher 1, blk 25, Goliad Townsite sur, south of Goliad, sd 528 ft.

GONZALES COUNTY—O. M. Owensby et al's H. B. Steen 1, N. M. Bane sur, sd 2135 ft. Tull et al's Boska 1, 61.2-ac tr, B. McClure sur, dr 1568 ft.

GUADALUPE COUNTY—Paul Armstrong's Clem Brodnaux 1, 36-ac tr, W. P. King sur, 2 mi ne Kingsbury, sd 2033 ft, shale. Clark & Gay's Waldrip 1, center 1½-ac tr in Staples townsite, G. Allen sur, sd 165 ft. Louis Crouch's J. Getzke 1, 1150 ft s of Guadalupe river 188-ac tr in J. D. Clements sur, lcn. Eickenroht & Gallagher's O. H. Jahns 1, 840-ac tr, Green Dewitt sur, 3 mi se South Darst Creek, Edwards lime test, dr 1738 ft, top Navarro 158 ft. A. C. Locke's H. Holmes 1, 26-ac tr, Cyrus Campbell sur, 2 mi n and w of Staples, sd 530 ft; J. S. Slaughter, C. Campbell sur, sd 1050 ft. R. C. Robbins' Mrs. J. W. Manford 1, James Hodges sur No. 374, 1250 ft e Manford pool, sd 2581 ft. Fred G. Scott's F. P. Pooley (Walter Schultz) 1, 2 mi s Staples, abnd 195 ft. H. P. Suggs & L. R. Reedy's J. H. Sherrill 1, 100-ac lse, Geo. Allen sur (1½ mi s of Staples), td 1019 ft, show oil in chalk, set 6⅝ csg at 1004 ft, woc. W. J. Walton et al's Antone Zoboroski 3, midway between No.'s 1 and 2 in 227-ac tr, Clements sur, dr 560 ft. Antone Zoboroski's No. 5, 150 ft sl 1150 ft nl of 227-ac tr in J. D. Clements sur, bldg dk.

HIDALGO COUNTY—Dean Brothers' Mrs. Lula B. George 1, tr 13, porc 41, Reynosa Juris, 7000 ft e of discovery, 700 ft n of Samfordyce production, dr 60 ft. Gerald O&G Co.'s Nelson Mortgage Co. 1, blk 38, lot A, La Blanca Agricultural subd, about four miles south of City of Donna, sp and prep set 500 ft sur csg. Gulf States Oil Co.'s Delta Orchards 1, lot 2, blk 73, Las Mestinas gr, 1 mi s of Mestinas field disc well, td 6808 ft, ran electric formation test, gas sand 5900-5915 ft; 5754-69 ft; and 6392-6410 ft, now shut down for orders; J. C. Engelman 3, lot 3, blk 70, Las Mestinas gr, 700 ft e of Mestinas field disc well, lcn. Kingwoods Oil Co.'s Osca Daskam 2, blk 30, porc 45, 10 mi ne Mission, dk. Maddox & Tatum's John H. Shary 1, tr 48-2, porc 53, Reynosa Juris (abt 7 mi n and 1 mi w of city of Mission) td 6006 ft, ran electric formation test and abnd. Maxwell-Mundy-Morris' Southland Dev. Co. (Hidalgo County Water Control & Impr. Dist.) 1, lot 11, blk 20, Alamo Land & Sugar Co. subd, Alamo gr, 4 mi s Alamo, testing 735 ft. H. J. Porter et al's C. H. Swallow, lot 5, Porter subd, Minnesota-Texas Land & Irrigation Co. tr, s Alamo, sp and sd. Quintana Pet. Corp.'s John C. Engelman 1, e½ of lot 10, blk 94, Mestinas gr, 4 mi se of Gulf States No. 1 Engelman, cored to 5226 ft, reaming down, will resume coring. Dayle L. Smith Oil Co.'s Fairbanks & Youns 1, blk 44, porc 46, Reynosa Juris, 4 mi e Samfordyce field, td 1810 ft, reamed to 1640 and sd. Union Sulphur Co.'s ARGL&I 7, tr No. 2309, blk 59, about 4000 ft e of Mercedes field, td 7608 ft, set 5 inch csg at 7530 ft, sand 7510-40 ft, cleaning, showed oil, killed to set new liner and screen; No. 8 ARGL Co., td 2120 ft, blk No. 87, N. Capisalle district, coring 7260 ft shale. No. 9 ARGL Co., in farm tr 2268, blk 59, N. Capisalle district (abt ½ mi e of disc), lcn.

JIM HOGG COUNTY—S. L. Miller Oil Co.'s Yeager 2, 777 ft sl, 150 ft el of blk 6, sur 20, dk. P. H. Neilson, Trustee de la Garza 1, blk 293, Pippin subd, Randado gr, sd 610 ft. G. C. Rankin's Vela 1, blk 6, sec 5, dr 3952 ft.

JIM WELLS COUNTY—Houston Oil Co. et al's E. A. Hawkins et al 2, blk 11, Putnam subd, sh 3, San Diego gr, ½ mi n disc well, San Diego field, dr 5420 ft. O. W. Killam's George Reynolds 1, s¼ of sur 28, J. Harper grantee, 3 mi w of Orange Grove, dr 2175 ft. Henry Mode's B. W. Owens 1, 120-ac tr, J. Poitevent sur 151, ab 366, 2 mi s of Alfred, dk and sd. G. M. Richardson's No. 1, J. E. Garrett, sec 5, N. G. Collins gr, 15 mi n of Alice near Highway 66, reinstated, dr 80 ft. Texon Royalty and Lucey Pet.'s Coopwood and Rolsten 1, 330 ft nl and wl of sec 17, Richard King farm lots, 2½ mi nw Agua Dulce, dr 1600 ft.

KARNES COUNTY—John Owen et al's B. E. Ruhman 1, in tr 7, Butler subd of B. F. Ruhman land in Carlos Martinez sur, 3 mi ne

of Kenedy, td 3300 ft, running electric formation test.

KERR COUNTY — Auld & Evans' I. R. Heffner 1, sec 13, of BS&F sur, 25 mi nw Kerrville, sd 1380 ft. Eastland Oil Co.'s Jeff Love 7, in J. Martinez sur, sec 1594, td 1512 ft, pipe leaking at about 1100 ft, recementing csg. Evans & Edminston's Will Auld 1, sec 1592, and on 418-ac tr, sp and sd.

KLEBERG COUNTY—Clark & Anderson's J. W. Kellam 1, lot 7, sec 53 KT&I subd, 2 mi se Kingsville field, sp and sd.

LAVACA COUNTY—J. D. Aiguier et al's No. 1 A. A. Staffa, W. R. Hensey sur, 3 mi s of nl of county, sd 2330 ft.

LIVE OAK COUNTY—Dirks Brothers' J. R. Dougherty 1, J. Beagle sur, 6 mi w of La Garto, td 4514 ft, make 4th dst 4508-14 ft in Gov't Wells sand. R. H. Feltne et al's John T. Carter & Bros. 1, nw 120-ac of w 160-ac of sec 319, T&T Ry. Co. sur in extreme sw portion of county, near Sangor Ranch, td 2957 ft, dst 2952-57 ft, show 34 thribles mud and gas and 6 thribles sw, made several heads while breaking down, fsh 2962 ft. Houston Oil Co.'s Mrs. C. L. Cartwright 33, 1172 ft n No. 21, 880-ac tr, Francis Botello, td 4660 ft, pb to 3300 ft, blew out after pb, still burning, destroyed dk and rig. Ogden & Reed's D. C. Reed 1, Clogg Ranch, sw part of county, dr water well.

MAVERICK COUNTY—Fulwood & Merr's State Bank & Trust Co. 1, GC&SF sur No. 3, 2 mi n of Eagle Pass, sd 770 ft. Thompson & Streeter's Joseph Wipff 1, sec 18, 7 mi w Chittim field, 10 mi n Eagle Pass, sd 220 ft.

McMULLEN COUNTY—Agarita Oil Co.'s (I. W. Taylor) Lark 2, 330 ft fr No. 1 Lark, blk 56, E. W. B. Scrugham sur, coring 875 ft. Aransas Oil Co.'s No. 2 Ruckman, dr 450 ft, gas sand 256 ft. Darby Pet. Co.'s Hagist 3-B, AB&M sur No. 181, mim. Thornton Davis et al's (Whisenant and Trenchard) Roos Bros. 1, sur 93, 3 mi e and n of Loma Alta field, dr 1850 ft. F. Daybault's Matula 1, 100-ac James Garner sur, 2½ mi sw Calliham, sd 1018 ft, installing heavier rig. Charles A. Hall No. 2 Claunch, 200-ac tr, M. Hely sur, ½ mi s Calliham, 400 ft se No. 1, td 967 ft, gas sand 952-67 ft; 7 inch csg at 947 ft, woc. Hill et al's Richardson 1, 990 ft el, 1350 ft nl of sur 158, lcn. Magnolia Pet. Co.'s Kincaid 1, sec 86, 3 mi e of Texio well, coring 3130 ft. W. E. Rowe's Lee 1 sw cor of ne¼ of se¼ of sec 34, La Chusa Land Co. sur, coring 2380 ft. Stewart et al's Guy Lowe 1, Geo. Bright sur No. 21, 2½ mi sw Tilden, sd 2250 ft.

MEDINA COUNTY—Frank A. Brown's A. E. Brueks 1, John Ward sur, sd 700 ft; Mary Win 1, John Ward sur, td 60 ft, set sur csg and sd. W. C. Campbell et al (Ed Falvey et al's) McMenemey 1, sur No. 331, G. Petty sur, 4 mi se Devine, td 2892 ft, top chalk 2800 ft, pb to 2230 ft, set csg at 1910 ft, sand shown on electric formation test 1918-2230 ft, ran tubing, swabbed sw and sd. Caraco Oil Co.'s Taylor 3, Brushet sur 135, td 356 ft, prep rework. Gates & Hill's W. B. Odom 5, 160 ft wl 300-ac tr, H. Castro sur No. 174, 5 mi sw Hondo, dr 160 ft.

MILAM COUNTY—R. G. Cannon's H. & L. Ludson 1, 100-ac tr, S. C. Robinson sur, sp and sd.

NUECES COUNTY—Allen & McCormich's W. B. McBurnett 1, lot 2, Roberts & White subd Robt. Shallert Ranch, 5000-ft test, dr 3100 ft; had sand 1930-40 ft, show gas. J. H. Coker & Lee Bros. Oil Co.'s A. J. Geistman 1, 60-ac tr, J. Ward sur 316, dr 4160 ft. A. D. Corgey's Baldwin 1-A, blk 21, Russell Farm lots, Villareal sur, one mi s Saxet field, ru. J. T. Cox's John Harvey, share 11, Harvey lands, 2½ mi se Callahan, mim, contract depth 5000 ft. Culton & Republic Nat. Gas Co.'s 1-C Baldwin et al, blk 13, J. C. Russell Farm lots, coring 4530 ft. D. H. Hawn's Dr. C. W. Skipper 1, 16-ac tr, E. Villareal sur, td 4080 ft; set 7-inch csg at 4075 ft, woc. M. F. Hurlburt's J. O. Phillip 1, center lot 9, 20-ac tr, sur 48 of Flour Bluff Encinal Garden tracts, abt 9¼ mi se Corpus, ru. R. Johnson & W. E. Skeen's Lillyan Smith 1, 200 ft nel and swl of 3-ac tr, Bancroft Farm lots, 1600 ft e Saxet Heights field, mim and ru. Magnolia Pet. Corp.'s J. C. Baldwin 10, 140-ac tr, A. F. Martin sur 150, dr 3300 ft. Santa Clara Oil Co.'s (Atkins & O'Neil) C. H. Cooke, sec 14, Guadrilla Irrigation Co. sur, 4 mi e Driscoll, ru. Southern Minerals' Alkali Plant 1, E. Villareal sur, 1100 ft nw of Hawn No. 1 Shely, td 4076 ft, set 7 inch csg at 4066 ft, woc. Southern Minerals' Annie T. Kaler 1, 274 ft el, 151 ft wl, of tr, sh 4-B and 1-B, Kaler Land sur, one mi w of Corpus, lcn. Thompson & McGrew's A. F. Geistman 1, 120-ac tr, in J. R. Ward sur 317, offset Nelson's Buckholt 1, lcn.

REFUGIO COUNTY—Quintana Pet. Corp.'s Fannie Heard 1, Thomas Webb sur, ab 298, 3 mi e of Greta field, 1 mi n Tomoconnor, dk and sd. Sorey et al No. 1 Cable, sec 4, blk 18, Sunshine subd, Refugio Town tracts, lcn.

SAN PATRICIO COUNTY—Benedum & Trees' Mrs. E. H. Welder 2, sec 19, Welder Ranch subd, 3½ mi ne Sinton, dr 4729 ft; Jones 1, nw½ sec 65, George H. Paul's subd of Coleman-Fulton Pasture Co. Lands, 3 mi e Whitepoint field and 4½ mi nw of Portland, set sur csg, woc. Esnes Oil Co.'s (George E. Smith) J. L. Britton 3, 160-ac tr, sec 6, blks 7 and 8, 2nd subd of Taft Farm lands, lcn. Humble O&R Co.'s Godwin 2, 210-ac tr, Taft Farm lands, sec 23, lcn; J. W. Mayo 1, J. N. Tabor sur, td 3975 ft, sand 3969-75 ft, flowed 35 bbls in one hr thru ⅜ ch, tp 420 lbs, cp 440 lbs. Nabod Royalties, Inc.'s (Texon Drlg Co.) R. L. Rambo 1, lot 6, sec 35, 4th addition Taft Farm lands, ½ mi e of s end of Plymouth field, ru. Santa Clara Oil Co.'s (Atkins & O'Neil) J. F. Welder heirs 4, 1250-ac lse, P. Vilareal sur, 1½ mi sw of discovery well, dr 3600 ft. Shell Pet. Corp.'s G. W. Pullin 1, sec 1, second addition Taft Farm lands, ru. Stanolind O&G Co.'s August Floerke Sr., 1, lot 5, blk 7, 1st add. Taft Farm lands, 4 mi s and e of Taft field, D&A 6511 ft. Willis Storm's Nancy Hobbs 1-A, 50-ac tr, prep sp.

STARR COUNTY—O. G. Borah et al's V. C. de Guerra 1-A, sh 92, porc 68, 2 mi n of Roma, dr 350 ft. John H. Clopton's No. 2 A. K. Bass, sec 377, 1½ mi s No. 1 Bass, D&A 760 ft. Coreta Pet. Co.'s J. H. Burnett (Heden et al) 1, sh 47, porc 80, sd 1500 ft. Griffin & Kimbrough's Guerra 1, sh 298, porc 69, n of Mier, lcn. Harter & Maynow's Sanchez 3, sh 69, porc 72, n Roma, sd 512 ft. Marc Jenkins' Wm. Martin 1, sec 527, 13½ mi ne of Rio Grande City, sd 775 ft. Sun Oil Co.'s Chapatala Land Co. 1, porc 99, 600 ft w of production, td 2816 ft, sand 2814-16 ft, dst 2789-2816 ft, show 550 ft plo, 55 lbs. pressure, ¼ top and ⅜ bottom, 4½ min, set 7 inch csg 2810 ft, washing in show oil, extends Samfordyce field 1500 ft west. Otto W. Woods H. P. Guerra 1, lot 35, Conroe subd, porc 55, Mier Juris, spud in and shut down.

TRAVIS COUNTY—Albrecht & Brinkrueger, Sr.'s M. C. Swenson 1, 75-ac tr, L. Kimbro League, sec 5, sd 310 ft. Artz & Co.'s Wolff 1, Thomas Hancock sur No. 20, ½ mi n New Sweden, underreaming 6⅝ inch csg at 1160 ft. Sol-Mar Oil Corp.'s P. Carlson 1, 480 ft nl, 100 ft e of 40-ac tr in M. W. Smith sur, 4 mi n of Kimbro, lcn. Mrs. Turner's M. E. Abramson, M. E. Abramson 100-ac tr, L. Kimbro sur, sd 800 ft. Walden Oil Co.'s P. C. Willis Est. 40-ac tr, J. Kemp sur, top chalk 892 ft, top serpentine 952 ft, D&A 1050 ft.

VICTORIA COUNTY — Barnsdall & Felmont's W. R. Smith 2, A. Murray sur, ab 259, Placedo field, td 6035 ft, dst 6027-35 ft, show 5000 ft oil, 50 lbs. pressure, top sand 6030 ft. Costa & Eastern Texas' Kruppa 1, Rupley sur, ab 290, td 6468 ft, pb and comp as gasser at 5360 ft, but showed sw thru perf 5341-46 ft. Rowan & Hope's A. W. Scheel 1, Scheel 195-ac tr in J. E. Escalera gr, lcn. E. L. Smith & Gulf Prod. Co.'s S. E. Wright 2, J. M. Brownson sur No. 8, Placedo area, td 6085 ft, under control. S. C. Yingling's Jacob Stehle 1, 15-ac tr, P. Gallardo sur, ab 32, 1 mi sw of Coleto Creek field, sd 5394 ft, fsh job.

WEBB COUNTY—Foster Barnsley's C. H. Webster 5, ne¼ of se¼ of sur 72, ru. Payne & Martinez's Mrs. M. P. Perry 1, sur 771, lcn. S. S. & B. Oil Co.'s Lone Star Construction Co. 9 (now Lutex Oil Co.), porc 12, ½ mi nw of Laredo, sd 2003 ft. South Texas Oil Co.'s Fee 1, blk 21, sec 768, 1½ mi sw Laurel field, sand 1728-42 ft, 7 inch csg 1729 ft, tested 3 jts oil and mud, free oil tested est 5 bbls day, coring deeper. Southwest Drlg. Co.'s Ruffing Lopez 1, ne¼ of sur 139, 4 mi n and e of Bruni and 5 mi s of Lopez field, coring 3600 ft. W. H. Vernor, Tr.'s, Jefferies Ranch 1, blk 13, sec 1453, 30 mi nw Laredo, sd 995 ft.

WILLACY COUNTY — Shell Pet. Co.'s Yturria 1, 990 ft out of most southerly se corner of share 64, lcn, contract depth 9200 ft.

WILLIAMSON COUNTY—Fritz Fuch's A. Bracker 1, Mahon sur, D&A 1445 ft. Glass Bros. A. Albert 1, P. Coursey sur, sd 785 ft. H. F. Goff's Charles Patschke 1, 325 ft sl, 1270 ft wl of 100-ac tr in Foley sur, 2 mi se of Thorndale, td 1155 ft, reinstated, sand 1130-55 ft; prep set csg. Hodleman, Nations & Hornberger's H. F. Teggeman 1, sec 4, H. H. & T. B. Tr sur, 2 mi nw Thrall, sd 520 ft. G. A. Ripley's L. Malmquist 1, 105-ac tr, P. J. Wyche sur, 1½ mi se Coupland, D&A 1405 ft, chalk. Taylor Refining Co.'s Christianson 1, R. B. Bissett sur, D&A 1635 ft, chalk.

WILSON COUNTY—Comet Oil Co.'s Jim McDaniel 1, 343-ac tr in Conception Botello sur, 4 mi Poth, sp and sd. Otto Hierholzer's E. M. Hierholzer 1, 500 ft nearest property line, 1038-ac tr, R. Salinas sur, lcn. A. G. Reimenschneider's Lon Harrell 1, 209-ac tr in Manuel Baerrera sur, 5 mi s of Floresville, sd 915 ft, sand, shale.

ZAPATA COUNTY—Ivan Howard et al's Y. Martinez 1, blk 1, sur 206, dk. J. J. O'Hern's M. J. Raymond, 487 ft nel, 330 ft nwl of blk 5, O'Hern subd, share "E" porc 27, 12 mi se Zapata, dr 2463 ft, hard rock. J. J. O'Hern et al's S. Vela 1, blk 2, porc 27, 7 mi ne of Charco Redondo field, dr 2452 ft.

ZAVALLA COUNTY—W. L. Bridges' E. B. Flowers 1, sec 19, blk 1, I&GN RR sur, sd 304 ft. Frank Buttram et al's Whitecotton 1, B&M sur No. 1, mir. Leona Oil Corp.'s George West 1, C. Bustillo sur No. 1, dr 2450 ft.

EAST TEXAS

ANDERSON COUNTY—Burke Bros. et al's S. G. Moore 1 (36.3-ac), J. C. Rosson sur, Camp Hill area, lcn. Standard Oil Co.'s (Kan) B. Hombs-Robinson 2 (57½-ac), John Adams sur, Long Lake area, lcn. Tide Water & Seaboard Oil Corp.'s Shaw-Cern 5 (1216-ac), Dan Parker sur, Long Lake area, elev 299 ft, top Woodbine series 5148 ft, td 5347 ft, est 40 bbls oil daily; S. & I. Murray 1 (315-ac), S. Sanchez sur No. 2-10, Long Lake field, mim.

BOWIE COUNTY—Woodley & Bentley's J. D. Lumpkin 1 (245-ac), John McDermott sur, 1¼ mi sw Dalby Springs, dr 905 ft.

CASS COUNTY—American-Liberty Oil Co.'s D. A. Maxie 1 (86-ac), John Collum sur, Rodessa area, elev 234 ft, Annona chalk 2085-2405 ft, top Georgetown lime 3146 ft, top red shale 3416 ft, top anhydrite 5065 ft, dr 5200 ft; Marcus Rambo 1 (86-ac), J. H. Rives sur, Rodessa area, elev 249.2 ft, dk. R. W. Norton Tr.'s Mary Rives 2 (85-ac), John Collum sur, Rodessa area, lcn. T. H. McElvain et al's C. M. Beckett 1 (7.62-ac), John Collum sur, Rodessa area, lcn. United Production Corp.'s J. R. Jones 1 (70-ac), B. J. Murray sur, Rodessa area, elev 247 ft, base chalk 2580 ft, top red shale 3404 ft, top anhydrite 5035 ft, top massive anhydrite 5319 ft, dr 5600 ft; J. R. Jones 2, elev 207 ft, Annona chalk 1935-2580 ft, top red shale 3375 ft, top anhydrite 5007 ft, top massive anhydrite 5280-5517 ft, top Hill sand 5664 ft, top Young sand 5814 ft, dr 6000 ft.

COLLIN COUNTY—Port Bolivar Oil & Ref. Co.'s O. G. Durning-Clarkston 1-A (140-ac), Wm. Creager sur, Pat. No. 1193 ft, elev 722 ft, sd 3866 ft.

FRANKLIN COUNTY—W. C. Windsor et al's King & Hughes 1 (40-ac), Orlander James sur, Talco area, elev 364 ft, Pecan chalk 1621-1806 ft, top Woodbine series 2818 ft, top Georgetown lime 3381 ft, small show free oil and mud on dst at 4101-4181 ft, cem 7-in csg 4136 ft. Ned B. Morris, Jr., et al's R. H. Harper 1 (4-ac), C. Payne sur, lcn.

FREESTONE COUNTY—Tide Water and Seaboard Oil Corp.'s J. L. Johnson 1 (894-ac), H. Wheeler sur, Long Lake area, dr 2120 ft.

GREGG COUNTY—John Hoover et al (was O. T. Clark et al's) T. G. Williams 1 (100-ac), David Hill sur, 3 mi ne Longview, elev 427 ft, Pecan chalk 2391-2985 ft; top Austin chalk 3447 ft, dr Georgetown lime 3865 ft.

GRAYSON COUNTY—Olson Drl. Co. and Frank Gardner et al's S. W. Life Insurance Co. 1 (160-ac), J. C. Jamison sur A-865, 3 mi n Pottsboro, elev 767 ft, Trinity series fr surface to 850 ft, Springer shale 850-1240 ft, Mississippian Caney shale 1240-4308 ft, fine grained sand 4308-4482 ft (with odor oil-gas 4441-82 ft), chert 4482-4637 ft, top Woodford shale 4637 ft, lost dp 4670 ft, pb to 3535 ft, dr 4910 ft. Port Bolivar Oil & Ref. Co.'s Creed Taylor 1 (160-ac), J. Fitzhugh sur, 3 mi se Gunter, sd 3931 ft.

HENDERSON COUNTY—L. V. Marmar et al's I. W. Brown 1 (18¾-ac), R. H. Pearson sur, nw Cayuga area, lcn. W. McDouglas et al's E. Price 1 (216-ac), M. Mathews sur, dk. Sparks et al's Theo E. Berry 1 (167.8-ac), Aaron York sur No. 847, 5 mi s Brownsboro, lcn. H. M. Wilson et al's Fee 1 (943-ac), Thomas Caro sur, 5 mi n Malakoff, elev 359 ft, top Pecan chalk 2300 (est) ft, sd 2800 ft.

KAUFMAN COUNTY—C. C. Pearson et al's G. W. Martin 1 (100-ac), W. F. C. Butler sur, elev 429 ft, Austin chalk 1940-2200 ft, sd 2402 ft, may skid rig.

LAMAR COUNTY—Bruce Bros. et al's Chas. Price 1, Wm. Nelson sur, 1 mi w Trout, elev 484 ft, sd 326 ft. J. A. Forester et al's J. S. Woodward 1 (18¾-ac), J. W. Woodward sur, 1½ mi e by s of Minter, elev 402 ft, top Georgetown lime 2256 ft, dr 3709 ft. Portland Oil Co.'s J. M. Johnson 1 (96-ac), Luke Roberts sur, 1 mi w Deport, elev 466 ft, top Georgetown lime 2020 ft, dry and abd 3014 ft.

LIMESTONE COUNTY—C. F. Lytle et al's J. L. Thompson 1-T (141-ac), Pedro Varella sur, W. Mexia field Trinity test, dr 5015 ft. Monte Oil Co.'s A. E. Rosson 1, blk 4, Pedro Varella sur, nw edge old Nigger Creek area, Austin chalk 2540-2770 ft, top Woodbine 2840 ft, sd to cem csg, td 2850 ft.

MORRIS COUNTY—Raycotuck, Inc.'s P. M. Staggers 3 (40-ac), J. D. Nelson sur, top Pecan chalk 2525 ft, sdo 3804 ft. Steve J. Rotundi et al's W. & C. Smith 1 (50-ac), M. C. Vela sur, 2½ mi sw Naples, top Navarro chalk 2258 ft, sd 4105 ft.

NAVARRO COUNTY—E. M. Thomason & Co.'s Estes Bros. 1 (58-ac), blk 11, Wm. Gilbert sur, 1 mi e Roane, top broken Austin chalk 1700 ft and top hard chalk 1750 ft, dr 2690 ft. W. A. Reiter et al's Dr. T. W. Bounds 1, H. T. & B. Ry. sur, near Wortham, rig.

RED RIVER COUNTY—Annona O. & G. Co.'s Leo. & Otto Roberts 1 (200-ac), James

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Bankston sur, 2 mi ne Annona, elev 396 ft, Pecan chalk 40-380 ft, dr 430 ft. Carson & Seigel's W. T. Morris 1 (351-ac), Joseph Guest sur, 1 mi s Detroit, elev 478 ft, sd 825 ft. Mid-West Pet. Co. and Texas Oil & Royalty Co.'s Hocker-Hughes 1 (160-ac), M. E. P. & P. Ry. sur, lcn.

RUSK COUNTY—McCallum et al's E. C. Gary 1 (265-ac), John Piburn sur, 5 mi s Henderson, elev 338 ft, Pecan chalk 2448-2715 ft, dr 3265 ft. Alex McCutchin et al's 1. B. Moyers 1, H. Langham sur, dr 2665 ft. J. W. Shipman et al's Citizens Nat'l Bank (L. T. Burton) 1-A (125-ac), J. J. Y'Barbo sur, 4 mi ne Henderson, elev 432 ft, dr 3500 ft. Pure Oil Co.'s W. H. Faulkner 1 (60-ac), Wm. Elliott sur, 5 mi e Mount Enterprise, Trinity sand test, rig.

SMITH COUNTY—W. L. Cloud et al's Dora Kendall 1-A, John Williams sur, 3 mi e Van field, dr 910 ft. J. G. Beard et al's H. Holley 1 (50-ac), H. M. Kinsey sur, 2 mi s Chapel Hill, elev 478 ft, top Pecan 2834 ft, dr 2880 ft. Thompson & Colby's W. P. Walsh 1, Samuel Barnett sur, 6½ mi ne Tyler, dr 1000 ft. Winona Oil Corp.'s McClung 1 (23½-ac), E. Newberry sur, 1 mi e Winona, sd 1165 ft.

TITUS COUNTY—C. M. (Dad) Joiner et al's Huernish Hrs. 1, Henry P. Banks sur, 12 mi e Talco, dk. Humble's Mary D. Grove 1 (82.9-ac), Ben Jones sur, 2 mi e Talco, Pecan chalk 1605-1642 ft, dr Woodbine sand 2995 ft. R. L. Peveto, C. N. Housh, E. G. Thompson et al's C. M. Carr 1 (108½-ac), M. V. Delgado sur, 1¼ mi e Talco, elev 370 ft, Pecan chalk 1611-1788 ft, top broken Austin chalk 3011 ft, top hard chalk 3032-3212 ft, Woodbine series 3436-3866 ft, Del Rio clay 3866-3962 ft, top Georgetown lime 3962 ft, Paluxy sand 4190-4208 ft, swabbed 569 bbls oil, testing 27.5 degrees gravity at 86 degrees temperature, or 25.8 degrees gravity corrected, in 19 hrs ending 3 p.m. 3-17-36, swabbed 281 bbls oil next 16 hrs. Jules Alford Tr. et al's W. D. Fry 1, I. P. Stern sur, 1½ mi se Talco, dk. Leland Fikes et al's Talco Townsite Co. 1 (100-ac), M. V. Delgado sur, lcn. O'Neal Tr. et al's (was Steve J. Rotundi et al's) O. C. Lillianstern 1 (80-ac), Wm. McCann sur, 5 mi se Talco, dk. Ned B. Morris, Jr., et al's W. H. Hughes 1 (6½-ac), M. V. Delgado sur, lcn; Hughes 2, lcn. L. B. Culberson et al's E. Unsell 1, center of Talco townsite lot, lcn.

TEXAS GULF COAST

BRAZORIA COUNTY—Gulf's Fairfield 1, Lockridge prospect, A. Robeson sur, on test flowed gas and 31 grav. oil through ⅜ chk, si pres., 2450 lb, td 6277 ft. Texas Gulf Producing Co.'s Sparks 1, Angleton prospect, Wm. Roberts sur, mim. Strake Pet. Corp.'s Poole 1, Poole Ranch prospect, E. Eggars sur, dr hd sn and shale 4815 ft.

BURLESON COUNTY — Walter Blumenthal's Crain 1, se of Rockdale, W. C. Pierce sur, rep rig, td 5995 ft hd lime.

CHAMBERS COUNTY—Black Gold Pet. Co.'s Barrow 1, R. Barrow sur, sw and abn 8663 ft. Salt Dome-Gem Oil Co.'s A. B. & V. Lawrence 2, S. L. Barrow sur, dr pits and w well, Cotton Lake pros.

COLORADO COUNTY—G. W. Johnson's Francis Drymalla 1, 11 mi e Columbus, T. Coleman sur, dr plg in 10-in csg at 782 ft.

GALVESTON COUNTY—Coastal Mineral's Developments Co.'s Margaret J. Joslin 1, Genoa dist prospect, S. McKissick sur, lcn. Sun's Hughes 1, Green Lake prospect, W. C. M. Baker sur, r at 8539 ft, td 8613 ft.

HARDIN COUNTY—Republic Prod. Co.'s Burrell Fee 1, A. A. Burrell sur, dr 5776 ft, shale and lime. Resource Prod. Corp.'s C. W. Howth 1, A. J. Cotton sur, lcn. Bowden et al's Walton Hrs. 1, 4 mi n Ariola, F. Ariola sur, abn at 1825 ft.

HARRIS COUNTY—Amerada Pet. Corp.'s Mrs. Neal Esperson 1, Deer Park prospect, s of ship channel, offsetting Tide Water refinery, mim. Amerada-Stanolind Oil & Gas Co.'s Louis Dopsalus 1, Fairbanks-Satsuma prospect, W. C. RR. sur No. 2, lcn. A. C. Hill's Swilley 1-A, Sheldon prospect, Victor Blanco sur, abn 7547 ft; same operator's Swilley 1-B, Victor Blanco sur, abn 7556 ft. E. E. Young's P. S. Griffith 1, w of Humble, A. R. Bodeman sur, will perf at 3350 ft, otd 4485 ft.

JEFFERSON COUNTY — Magnolia Pet. Co.'s H. B. Funchees, Jr. 1, Cheek prospect, H. T. & B. No. 6 sur, bldg rds. Smith & McDannald's Grinnell 1, n of Port Arthur, Grigsby sur, dr shale 6720 ft. Sun Oil Co.'s Hebert Broussard 1, did not mo, prep to shoot csg at 7248 ft.

LIBERTY COUNTY — Atlantic & Brace's Edna Hardy 1, Hardin area, J. Robeson sur, spd. Crown Central's Davis 1, 1 mi n Esperson field, D. L. Kokernot sur, lcn and pits.

MADISON COUNTY—Andrews-Lawrence's J. L. Poteet 3, Lewis Helzey sur, abn at 378 ft. John Mason's M. Goza 1, J. Woodruff sur, sd at 272 ft.

MATAGORDA COUNTY — Continental's Feife 1, Citrus Grove prospect, J. S. Chriswell sur, dst 7130-50 ft, open 50 min, ¼ top and bottom chokes, got 570 ft mud. John Deering's Estille 1, Cedar Lane prospect, Tone & Jamison sur, 6574 ft sd. Helmerick & Payne's Hawkins 1, Sheppards Mott, D. A. McCarthy sur, 23 shots at 7302-16 ft, swbd down to 6000 ft, no show. H. M. Smith Corp.'s Wadsworth 2, Sheppards Mott, S. R. Fisher sur, 13-in csg at 1260 ft, wocs. Sun's Graig 1, e flank of Hawkinsville, T. Williams sur, dr shale 5856 ft.

MONTGOMERY COUNTY — Chapman & Smith's Delta Land Co. 1, Dacus area, T. Sheppard sur, sd in shale at 2668 ft. Same operator's Delta Land Co. 2, w of No. 1, T. Sheppard sur, sd at 2501 ft. Jack Frazier's Maxey 1, Goodwin area, James Brown sur, dr gummy lime 5046 ft.

ORANGE COUNTY—Blue Line Oil Co.'s J. E. Peet 1, 8 mi n Orange, R. Ballew sur, sd at 2695 ft. Texas Canadian Oil Corp. test, n Orange field, lcn. J. T. Wood et al's E. W. Brown 1, 6 mi sw Orange, dr shale 4585 ft.

POLK COUNTY—J. T. Lightfoot's L. Davidson 1, ne of Corrigan, Houston County School Land sur, dr shale and lime 2512 ft. Gist & Graddy's Knox 1, F. Chair sur, elev 198 ft, dr hd shale, 3376 ft.

SAN JACINTO COUNTY—C. Gholson & L. Decker's Randolph 1, Evergreen area, V. Flores sur, dk and pits. Ralph Stern et al's R. B. Lobe Est. 1, 2 mi nw Cold Springs, D. McGee sur, abn in shale at 5670 ft.

WASHINGTON COUNTY—W. D. Twichell et al's Hoxie 1, S. Clampit sur, slight so reported at 1498-1501 ft, sd.

WHARTON COUNTY—Cockburn et al's T. Connor 1, Leach prospect, E. T. & R. R. sur, sec 73, abn in sw sn at 6020 ft. Pure's E. Paige 1, Blue Basin prospect, J. Pirie sur, td 7777 ft, mixing special mud. Sterling's A. Genzer 1, East Bernard prospect, J. Scott sur, td 720 ft in shale, 10-in csg at 652 ft, wocs.

WYOMING

CARBON COUNTY — General Petroleum Corporation, Union Pacific 1, sw nw 5-19n-83w, ru.

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GLOBE VALVES
Consolidated Ashcroft Hancock Company

Consolidated Ashcroft Hancock Company, Bridgeport, Conn., has announced a newly improved line of forged steel globe valves. These valves are made for pressure ratings up to 1500 pounds and are specially designed with a tongue-and-groove bolted bonnet for high temperature service. These valves are made in either cone or plug type and the valve seat ring and disc are made of heat-treated stainless steel. The makers claim that this trim material is exceptionally hard, and therefore resists wire drawing, indenting, and galling and reduces repairs.

It is claimed the features of these valves include: all parts made of steel for safety against fire hazards; long condensation chamber protects and increases life of packing; all wearing parts are renewable; and that the seat ring is easily removed with a standard hex wrench. The makers further state that these valves are easy to repack in service because of a special stainless steel back seat; and because the gland bolts come completely out allowing ample finger room and because of a relief plug for bleeding condensation chamber while repacking.

The many other features of these new forged steel valves are described in a new illustrated 20-page bulletin which may be obtained by writing the company, Bridgeport, Connecticut.

REMOTE VALVE CONTROL
The Foxboro Company

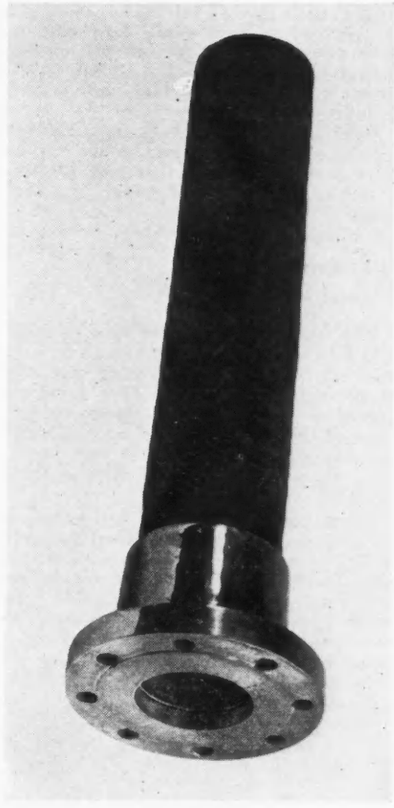
The Foxboro Company, Foxboro, Massachusetts, recently developed a new kind of remote hand control which enables the operator to adjust manually the degree of opening of an out-of-the-way, inaccessible valve without moving from his station. The manufacturer claims the control allows the operator to reset an inaccessible valve several hundred feet away to control temperature, pressure, flow or liquid level, using readings from his recording instruments to guide him in making the correct adjustments.

A feature of the design of the control is precision of valve setting, coupled with elimination of pumping or vibrating. Controlled flow can be changed less than one percent with the remote control, according to the manufacturer.

CHANNEL VALVE
Ingersoll-Rand Company

Ingersoll-Rand Company, 11 Broadway, New York, New York, announces production of a new valve for air and gas compressors called the "Channel" valve and featuring a design which tends toward obtaining slower air speeds through the valve ports.

The only moving parts of the valve, according to the announcement, are valve channels within each of which is a flat spring. The springs fit snugly within the channels, so that when the valves lift the springs straighten and a small quantity of air is trapped between the springs and the channels, thus forming air cushions to decelerate the valve channels after opening and bring them to a stop without impact.



Goodrich Barge Hose

BARGE LOADING HOSE
The B. F. Goodrich Company

The B. F. Goodrich Company, Akron, Ohio, recently placed on the market a barge oil loading hose that is lighter in weight and more easily handled than the heavier combination suction and discharge hose previously sold for transferring oil to and from barges and ocean-going tankers.

The new hose is offered in either smooth or rough bore, the former type permitting about 12 to 15 percent faster discharge, according to the manufacturer. Major construction features of the smooth bore (Type 800) are oil resisting tube, re-inforcement of round steel wire, and a tough rubber cover. The rough bore (Type 850) is the same except that it has an internal coil of flat steel wire for added re-inforcement. The hose is available in four and six-inch sizes, the four-inch having a flanged brass fitting with expansion rings, and the six-inch size having standard steel nipples and flanges.

WELDING ELECTRODE
The Lincoln Electric Company

The Lincoln Electric Company, Cleveland, Ohio, has announced a new electrode that is called "Aerisweld", a type that the manufacturer claims may be used to advantage in welding bronze, brass and copper. The electrode provides a solid homogeneous deposit, having characteristics of true phosphor bronze with notably high tensile strength, it is claimed. The new type is a shielded arc electrode for use with the metallic arc.

WORK-HOLDING FIXTURE
Landis Machine Company

Landis Machine Company, Waynesboro, Pennsylvania, announces a special work-holding fixture to maintain concentricity between both ends of a threaded part being worked on by Landis threading machines.

Concentricity is obtained by utilizing V grips under the threaded part backed up by a self-aligning clamp above. The fixture is attached to the carriage of the machine and can be adjusted to obtain required alignments. The rear locating plate can be adjusted for different lengths of pieces requiring threading on both ends.

SAFETY TRANSFORMER
The Acme Electric & Manufacturing Company

An entirely new type of transformer has been developed by The Acme Electric & Manufacturing Company of Cleveland for the purpose of increasing the safety factor in inspection or maintenance service. This unit is designed for use in plants or in service where inspections or maintenance must be done with electric illumination and in moist or damp places in buildings permeated with explosive vapor or fumes. Likewise, the use of this unit around any machinery, boilers, tanks, etc., reduces the potential shocking or explosive hazards.

This transformer is a compact, portable unit. A primary cord, rubber covered and Underwriter's approved may be plugged into any 110-volt 60-cycle circuit. The two secondaries to which extension cables are attached each consist of vulcanized approved cable with special non-pull-out-plugs. An ordinary pull on the extension will not break the circuit. Secondary current is rated at 32 volts.

Publish Pipe Standard

Members of the American Petroleum Institute have been notified that the "American Tentative Standard on Wrought Iron and Wrought Steel Pipe," developed by American Standards Association Sectional Committee B-36, has been published by the association. Copies are available at 50 cents each from the association, 29 West 39th street, New York.

This Week with the Industry's EQUIPMENT SUPPLIERS

Bridgeport Places Busch In Norris Organization

W. C. Norris, Inc., Tulsa, announces Bridgeport Brass Company of Bridgeport, Connecticut, has placed Roy E. Busch in the Norris organization to promote the sale of the latter company's products in the territory served by the Norris company as exclusive agents for Bridgeport admiralty condenser tubes, a complete stock of which is carried in Tulsa.

National Supply Company In New Houston Quarters

The National Supply Company has established a plant at Houston, located on Navigation Boulevard, occupying a 14-acre tract and served by the Houston Belt and Terminal Railroad. On this tract is an administration building, three warehouses, and two machine and assembly shops.

The first floor of the administration building is devoted to a show room, displaying oil field machinery. Included in this display are three Superior Diesel engines which drive the generators supplying the plant with power and light. The second floor of this building houses the administration, sales, and engineering staffs.

The warehouse unit is comprised of three buildings; two of which carry extensive stocks of oil field equipment. These two buildings are served by cranes and spur tracks, permitting speedy handling of the heaviest equipment by either truck or rail. The third building is a completely stocked oil field store to serve the trade.

The manufacturing and field service shop unit, occupying two buildings having a floor space of approximately 20,000 square feet, is equipped to render every conceivable service required by the producer.

The manufacturing program of this plant will be confined for the present to a limited line of oil field equipment. Provision has been made, however, on this 14-acre tract for expansion of manufacturing facilities, including additional machine shops, forge shops and foundries.

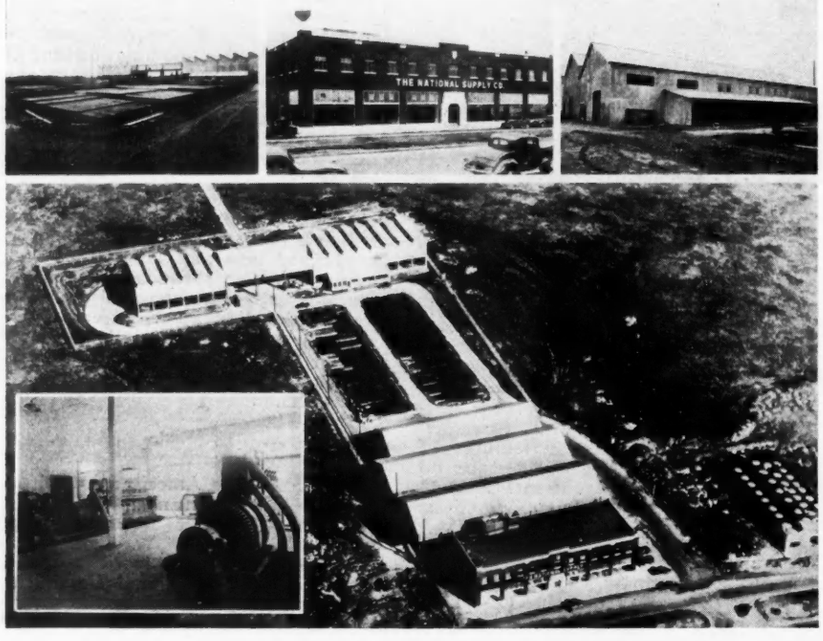
Complete stocks of Spang-Chalfant oil country tubular goods are maintained and provision is made for expansion that future demand may require.

Oil Men Invited to Exposition Banquet

The annual banquet held in connection with the Houston Oil Show has been scheduled for Thursday evening, April 23, in the City Auditorium. This dinner is one of the interesting entertainment features of the Oil Equipment and Engineering Exposition which will be held in the Convention Hall, Houston, Texas, from April 20 to 25, inclusive.

Additional features have been arranged for this year's banquet. Several speakers will present matters of interest to the oil men from all branches of the industry. These speeches will be short and will be followed by a well planned floor show. At the close of the banquet, however, each ticket holder will be entitled to free admission to the El Coronado Night Club. The only requirement for admittance to the Club will be the presentation of the stub which will be detached from the regular banquet ticket. The floor show and entertainment features at this club will be augmented for the occasion.

Although the banquet to be held in the auditorium will be a stag affair, all those in attendance will be permitted to be accompanied by a lady, without charge, at the night club show. Reservations for the banquet are now being made by the entertainment committee, care of the Oil Equipment and Engineering Exposition, Petroleum Building, Fairfax 8381, Houston, Texas.



Views of The National Supply Company's new plant at Houston

FRANK CHAMPION

Champion Touring South For Byron Jackson Company

Byron Jackson Company, Los Angeles, California, announces Frank Champion, general sales manager, is spending two or three months touring fields of Southwest and West Texas and the Gulf Coast of Texas and Louisiana.

After attending the exposition in Tulsa, he will visit fields of Oklahoma and Kansas prior to going to New York in the interest of foreign sales for Byron Jackson Company.

Revise Detail Drawings Of A. P. I. Riveted Tanks

Revised detail drawings of riveted tanks have been approved and published by the American Petroleum Institute's Division of Production Tank Committee, holders of Institute licenses have been informed. The revisions are in accordance with action taken by the committee at Tulsa, Oklahoma, in May, 1935 and include correction of drawing 78-4 to eliminate interference between inside butt strap and bottom angle.

Blueprints or vandyke negatives now are available upon request to Division of Production headquarters, 1508 Gulf States Building, Dallas, Texas.

Chain Drives

Link-Belt Company, Chicago, has ready for distribution a new book, No. 1725, describing the "Silverstreak" silent chain drives that are obtainable from stocks carried at the company's warehouses and by authorized dealers.

Squeaks from the Bull Wheel

Unfriendly Reception

"Willie, while you were away playing, a new sister came."

"Where did she come from?"

"Oh, from a land far away."

"Gawd, another foreigner."

Talk Training

"You must be keen on the talkies, old boy, to go twice a week."

"It's not that exactly. You see, if I don't go regularly I can't understand what my children are saying."

Left Undone

The pastor was examining one of the younger classes, and asked the question, "What are the sins of omission?"

After a little silence, one young lady offered: "Please, sir, they're sins we ought to have committed and haven't."

Only Chance

The squad of recruits had been out to rifle range for their first try at marksmanship. They knelt at 250 yards and fired. Not a hit. They moved up to 200 yards. Not a hit. They tried at 100 yards. Not a hit.

"'Tenshun!" the sergeant bawled. "Fix bayonets! Charge! It's your only chance."

Before Repeal

"Did you test this stuff, Joe?"

"Yes, I poured some in the ash tray to burn it."

"Did it burn green?"

"I don't know—I can't find the ash tray."

Quick Thinking

"Why didn't you stop when I yelled at you back there?"

"I thought you said, 'Hello, mayor'."

"Well, you see, Mr. Mayor, I was going to warn you about going too fast in the next town."

Too Expensive

Doctor: "There goes the only woman I ever loved."

Nurse: "Why don't you marry her?"

Doctor: "I can't afford it. She's my best patient."

Vivid Memory

"I noticed you got up and gave the lady your seat in the street car."

"Since childhood I have always respected a woman with a strap in her hand."

Resolution Working

Wife: "How you frighten me, John."

Husband: "What did I do now?"

Wife: "Oh, you found the keyhole so quick I was afraid it was somebody else."

Efficiency

Efficiency Expert: "I fired the worst clock watcher in your factory."

Owner: "Is that so? What's his name?"

Expert: "Joe Jones."

Owner: "Why, you idiot! He's my timekeeper."

Fully Repaid

"I believe that for every single thing you give away, it comes back two-fold to you."

"That's my experience. Last March I gave away my daughter and she and her husband came back in July."

Stag

"I went to a stag party last night, dearie."

"I thought that's where you had been. I heard you staggering in."

Discontent for Cows

Roadside notice posted in New Hampshire:

"By order of the selectmen, cows grazing by the roadside or riding bicycles on the sidewalk is hereby forbidden."

Was Ain't Is

"What's this?"

"It's bean soup, sir."

"No matter what it has been, the question is, what is it now?"

Hopeful

Mother-in-law: "That's a cute little tree on the lawn, John. It's only a foot high."

Son-in-law, "Yes, I just planted it. I hope that the next time you come you'll be able to sit in its shade."

All Together

Professor: "I am about to perform a very interesting chemical experiment. Should I do anything wrong, the whole class, including myself, might be blown through the roof. Kindly step nearer, so you can follow me better."

Depression Victim

A negro who had an injured head entered a doctor's office.

"Hello, Sam! Got cut again, I see."

"Yes sah. I done got carved up wid a razor."

"Why don't you keep out of bad company, Sam?"

"'Deed I'd like to; but I ain't got 'nuf money to get a divorce."

Honeymoon

"Did you go on a honeymoon, Suzabelle?"

"Ah suppose you might call it dat, ma'am. Hennery done help me wid washing de fust week."

Improving

"A telegram from George, dear."

"Well, did he pass the examination this time?"

"No, but he is almost at the top of the list of those who failed."

Tat

The cheek of that conductor. He glared at me as if I hadn't paid my fare.

And what did you do?

I glared righth back at him as if I had.

Ants

A school teacher asked the pupils to write a short essay and to choose their own subjects.

A little girl sent in the following paper:

"My subjek is 'Ants.' Ants is of two kinds, insects and lady uncles.

"Sometimes they live in holes and sometimes they crawl into sugar boles, and sometimes they live in with their married sisters."

Mistaken Identity

First Father: "What, your son is an undertaker? I thought you said he was a doctor?"

Second Father: "No, I said he followed the medical profession."

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Buckeye Traction Ditcher Co. —
A. M. Byers Co. —
Byron Jackson Co. —

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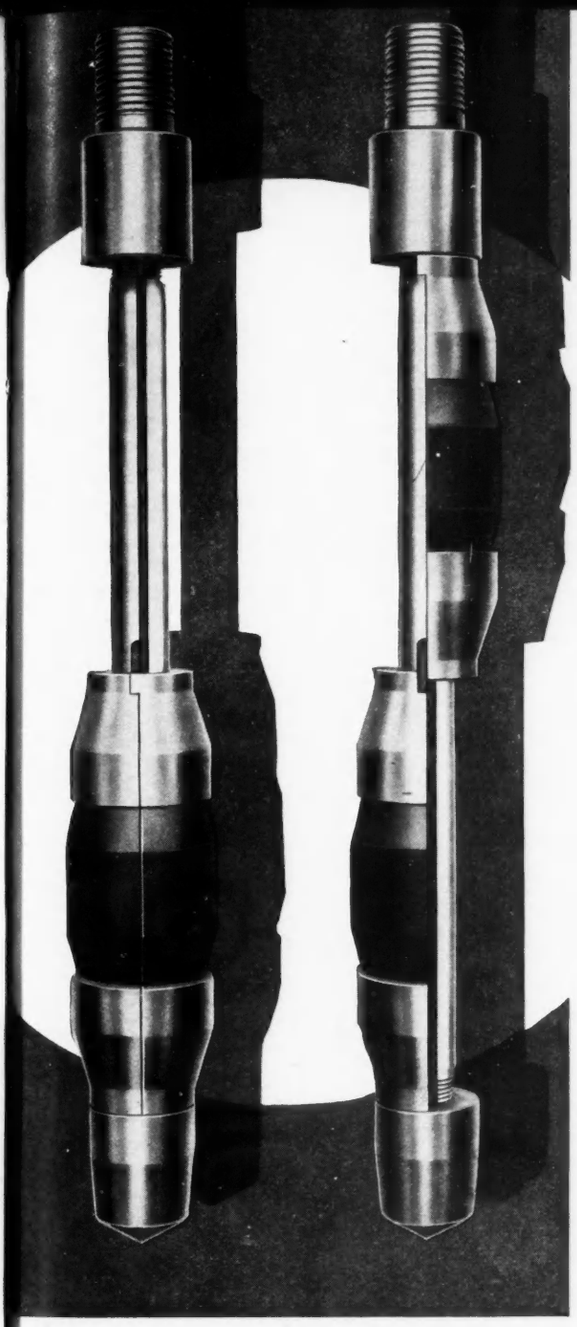

The right hand illustration above, shows the Mission Valveless Open-Flow Swab as it falls in the tubing, with one-half of the swab rubber raised above the other to allow for fluid passage.

The left hand illustration shows the swab on the up-stroke with rubbers side by side in swabbing position.

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Full Hole Cementing not only reduces the initial investment per well in an area where screens or perforated liners are used, but there is greater ultimate profit.

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